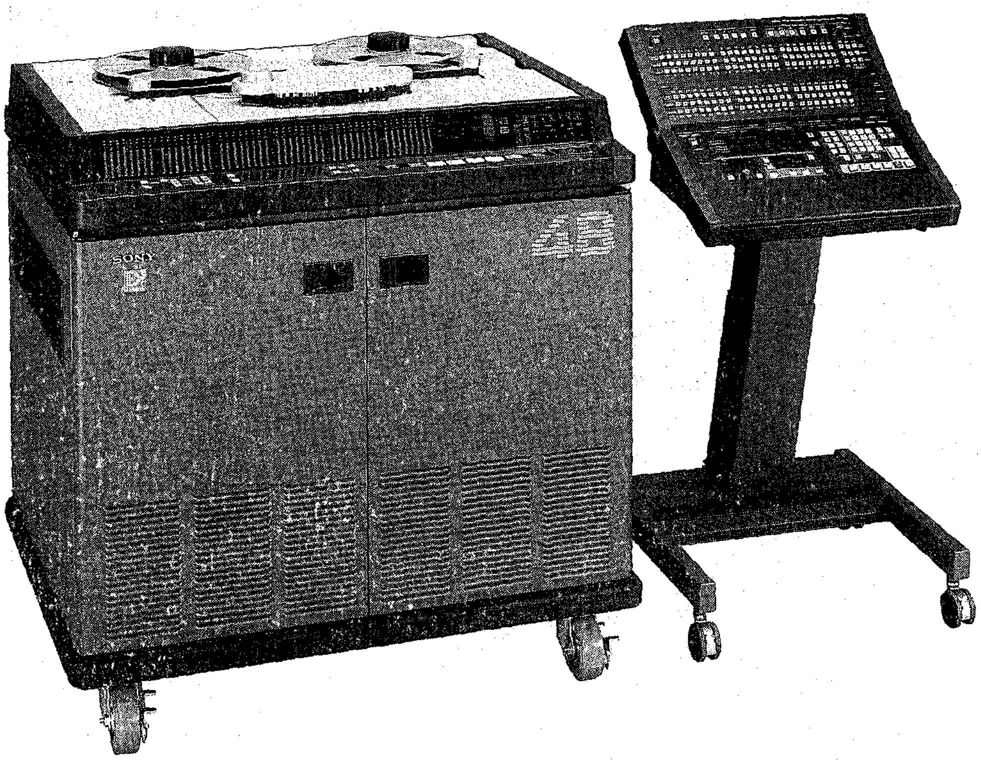
SONY®

DIGITAL AUDIO RECORDER

PCM-3348



DASH

MAINTENANCE MANUAL
Volume1 1st Edition (Revised 6)
Serial No.10001 and Higher

WARNING

For the customers in U.S.A.

This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.
Important—To insure that the complete system (including this peripheral) is capable of complying with the FCC requirements, it is recommended that the user make sure that the individual equipment of the complete system has a label with one of the following statements.
"This equipment has been tested with a Class A Computing Device and has been found to comply with Part 15 of FCC rules."
—or—
"This equipment complies with the requirements in Part 15 of FCC rules for a Class A Computing Device."
—or equivalent.

The shielded interface cable recommended in this manual must be used with this equipment in order to comply with the limits for a computing device pursuant to Subpart J of Part 15 of FCC Rules.

For the customers in Canada

This apparatus complies with the Class A limits for radio noise emissions set out in Radio Interference Regulations.

Pour les utilisateurs au Canada

Cet appareil est conforme aux normes Classe A pour bruits radioélectriques, spécifiés dans le Réglement sur le brouillage radioélectrique.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

Check the metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 3.5 mA. Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 5.25 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 20 V AC range are suitable. (See Fig. A)

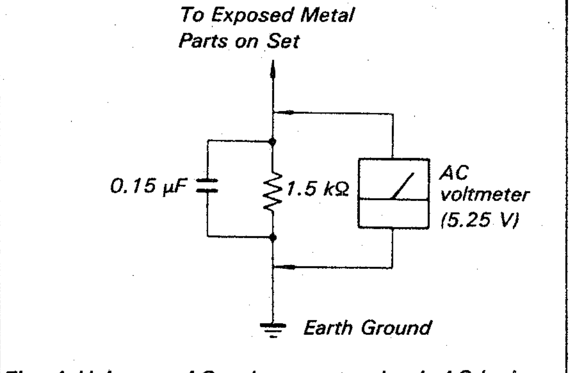


Fig. A. Using an AC voltmeter to check AC leakage

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NOTE ON THE USE OF THE MANUAL

When you use this maintenance manual for the **PCM-3348 with Serial No. 20001 and higher**, refer to the DABK-3341 Maintenance Manual on the following items.

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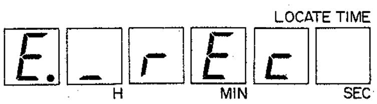
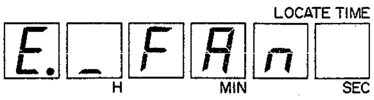
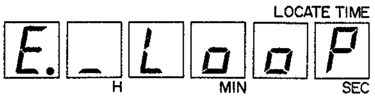
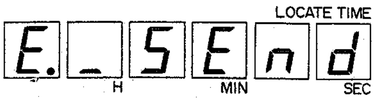
SECTION 1
MESSAGE LIST

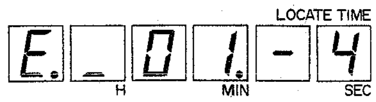
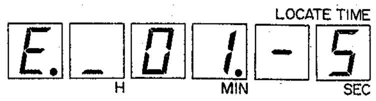
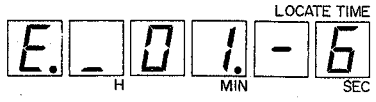
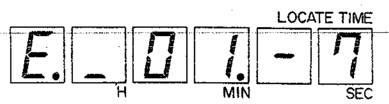
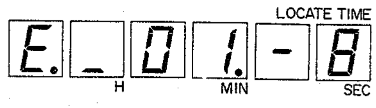
Note: For the PCM-3348 with **Serial No. 20001 and higher**, refer to "Section 1 Message Display Chart" of the DABK-3341 maintenance manual.

1-1. MESSAGE IN LOCATE DISPLAY WINDOW ON THE UNIT WHEN SYSTEM ALARM LIGHTS

Display	Possible Cause and Phenomenon	Countermeasures
	The CTL cannot be read immediately after the system-controlled recording has started in assemble recording mode (automatic assemble operation). Presumably, it is due to the CTL not recorded, or the tape format or Fs is not compatible with PCM-3348. In this case, recording cannot be done in automatic assemble mode.	Use a PCM-3348 compatible tape and re-start recording from the portion where the CTL has been recorded. If it functions properly, it is not a failure. If it still doesn't work, then check CTL-2 and TRC-1 boards.
	Low rotation of the fan motor or a complete stop. If this state is continued, the internal temperature increases and may cause a failure.	Check the fan motor. If the fan motor has a failure, replace it. If it rotates correctly, check the rotation detector circuit (FAM-14 board, detecting magnet, etc.).
	The digital signal processing system is abnormal. When the power is turned on, the self-diagnosable test of the digital singal processing system is automatically performed in the board. Input the test signal in E-to-E mode, and compare it with the output signal passed through the signal processing block. If even one channel of the output signals is not the same, this alarm is displayed. In this case, recording/playback of the digital channel does not operate correctly. If a normal channel is available, that channel can be used.	Check if the channel is normal as follows: • Recording mode: ADV REC • Monitor mode: REPRO • ED-1 board: E-to-E, TEST, SIN Under this condition, the normal channel is displayed on the meter to a full scale. If the recorded tape is played back correctly, the decoder block of the digital signal processing is normal; therefore, the encoder block has a failure. If the abnormal channel changes by changing the positions of SPC-1 to SPU-4 boards, the boards are defective. If either case is not observed, check ED-1 to 2 boards, and MC-33/33A board.
	During the communication between the KC-17 and MC-33/33A boards, MC-33/33A board cannot receive the data sent from KC-17 board correctly. In addition, the keys on the main unit are inoperative.	Turn the power on and re-check. If the trouble continues, check the harness between (CN302 and CN456), and the communication circuit block of MC-33/33A and KC-17 boards.

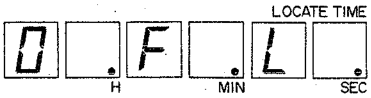
Display	Possible Cause and Phenomenon	Countermeasures
LOCATE TIME E. _ r E E L H MIN SEC	The drive voltage of the reel motor has exceeded the voltage limit. In this case, the tape is automatically shut off and the system control keys are inoperative.	Check the tape tension detector potentiometer, potential amplifier circuit of PTN-1 board, tension detector circuit of RS-24 board, speed servo block and their circumference.
LOCATE TIME E. _ E d. - 1 H MIN SEC	Test error of the RAM on ED board. On MC-33/33A board, the initial test of the control RAM on ED board is performed. The error occurred during the writing and reading check. In this case, REC, READY, REPRO/INPUT controls and others do not function correctly.	Turn the power on and re-check. If the trouble continues, check the CPU READ RAM and CPU WRITE RAM blocks on ED-2 board and their circumference. Also check MAB0 - 10, and MAB0 - 7 signals on MC-33 board.
LOCATE TIME E. _ E d. - 2 H MIN SEC	The control signal to terminate the recording does not function correctly. In this case, recording cannot be done correctly.	Check the REC ON (+)/(-), REC MONITOR (+)/(-) and REC-SRDY* signals respectively.
LOCATE TIME E. _ c 5. - 1 H MIN SEC	AD/DA conversion timing interruption for servo voltage is stopped. In this case, the tape is automatically shut off and the system control keys are inoperative.	Check the A/D CONTROLLER block and IAD-RD signal*.
LOCATE TIME E. _ r 5. - 1 H MIN SEC	The tape speed has exceeded the speed limit. In this case, the tape is automatically shut off.	Check the tape tension detector potentiometer, potential amplifier circuit on PTN-1 board, tension detector circuit and speed servo block on RS-24 board, and their circumference.
LOCATE TIME E. _ r 5. - 2 H MIN SEC	The rotation of the take-up reel motor has exceeded the speed limit. In this case, the tape is automatically shut off.	Check the tape tension detector potentiometer, potential amplifier circuit on PTN-1 board, tension detector circuit and speed servo block on RS-24 board, and their circumference.
LOCATE TIME E. _ r 5. - 3 H MIN SEC	The rotation of the supply reel motor has exceeded the speed limit. In this case, the tape is automatically shut off.	Check the tape tension detector potentiometer, potential amplifier circuit on PTN-1 board, tension detector circuit and speed servo block on RS-24 board, and their circumference.

Display	Possible Cause and Phenomenon	Countermeasures
LOCATE TIME E._r5.-4 H MIN SEC	The diameter of the wound tape has exceeded the limitation. In this case, the system control keys may not function correctly.	Check the radius of the tape and correct it. If it is correct, check TRFG, SRFG, CRFG and GMT boards, and FV converter block on RLD-1 and RS-24 boards.
LOCATE TIME E._r5.-5 H MIN SEC	The take-up and supply tension regulators have detected an excessively high or low tension. In this case, the tape is automatically shut off.	Load the tape again and re-check. If the trouble continues, check the tension on RS board has been properly adjusted. The trouble still remains, check the tension arm, tape tension detector potentiometer, tension detector circuit and its circumference on RS-24 and PTN-1 boards.
LOCATE TIME E._r5.-6 H MIN SEC	The power supply voltage for servo control (±15 V) has lowered abnormally. In this case, the tape is automatically shut off and the system control keys are inoperative.	Check RS-24 board and power source.
LOCATE TIME E._01.-1 H MIN SEC	KC-17 board do not operate correctly during the communication between KC-17 and MC-33/33A boards. In this case, the keys and display on the unit do not function correctly.	Check the harness between (CN302 and CN456), and the communication circuit block on MC-33/33A and KC-17 boards.
LOCATE TIME E._01.-2 H MIN SEC	The ROM test error on KC-17 board. On KC-17 board, the initial test is performed when the power is turned on. The ROM on KC-17 board does not operate during this test. In this case, the keys and display on the unit do not function correctly.	Check the ROM (ICM10) on KC-17 board.
LOCATE TIME E._01.-3 H MIN SEC	The RAM test error on KC-17 board. On KC-17 board, the initial test is performed when the power is turned on. The RAM on KC-17 board does not operate correctly during this test. In this case, the keys and display on the unit do not function correctly.	Check the RAM (ICD10) on KC-17 board.

Display	Possible Cause and Phenomenon	Countermeasures
	The 8279-B test error on KC-17 board. On KC-17 board, the initial test is performed when the power is turned on. The keys and 8279-B display control device do not operate correctly. In this case, the keys and display on the unit do not function correctly.	Check the 8279-B (ICK-4) on KC-17 board.
	The 8279-C test error on KC-17 board. On KC-17 board, the initial test is performed when the power is turned on. The keys and 8279-C display control device do not operate correctly during this test. In this case, the keys and display on the unit do not function correctly.	Check the 8279-C (ICH4) on KC-17 board.
	The 8279-A test error on KC-17 board. On KC-17 board, the initial test is performed when the power is turned on. The keys and 8279-A display control device do not operate correctly during this test. In this case, the keys and display on the unit do not function correctly.	Check the 8279-A (ICN9) on KC-17 board.
	The 71059 test error on KC-17 board. On KC-17 board, the initial test is performed when the power is turned on. The 71059 interruption control device does not operate correctly during this test. In this case, the keys and display on the unit do not function correctly.	Check the 71059 (ICD6) on KC-17 board.
	The 71055 test error on KC-17 board. On KC-17 board, the initial test is performed when the power is turned on. The 71055 I/O port device does not operate correctly during this test. In this case, the keys and display on the unit do not function correctly.	Check the 71055 (ICC4) on KC-17 board.

Display	Possible Cause and Phenomenon	Countermeasures
LOCATE TIME E._01.-9 H MIN SEC	The chattering timer test error on KC-17 board. On KC-17 board, the initial test is performed when the power is turned on. The timing interruption to eliminate chattering of the keys does not operate correctly during this test. In this case, the keys and display on the unit do not function correctly.	Check the chattering timer interruption circuit on KC-17 board.
LOCATE TIME E._01.10 H MIN SEC	The flashing timer test error on KC-17 board. On KC-17 board, the initial test is performed when the power is turned on. The timing interruption to make the display flash does not operate correctly during this test. In this case, the keys and display on the unit do not function correctly.	Check the flashing timer interruption circuit on KC-17 board.
LOCATE TIME E._02.-1 H MIN SEC	During the communication between KC-17 and MC-33/33A boards, the data sent from MC-33/33A board are not correct. In this case, the display on the unit does not function correctly.	Turn off the power and turn it on again, and re-check. If the trouble continues, check the harness between (CN302 and CN456) and the communication circuit block on MC-33/33A and KC-17 boards.
LOCATE TIME E._02.-2 H MIN SEC	During the communication between KC-17 and MC-33/33A boards, the transmission and reception on MC-33 board have not been performed correctly. In this case, the keys and display on the unit do not function correctly. rectly.	Turn the power off and turn it on again, and re-check. If the trouble continues, check the harness between (CN302 and CN456) and the communication circuit block on MC-33/33A and KC-17 boards.
LOCATE TIME E._03.-1 H MIN SEC	The internal clock generation circuit for word sync signal, etc. does not operate correctly.	Check the internal clock generation circuit block on CK-3 board.
LOCATE TIME E._05.-1 H MIN SEC	During the communication between TRC-1 and MC-33/33A boards, the transmission and reception on TRC-1 board have not been performed correctly. In this case, the system control and servo do not function correctly.	Check the communication dual port RAM on TRC-1 and MC-33/33A boards and its circumference.

1-2. MESSAGE LIST ON RM-3348 REMOTE CONTROLLER

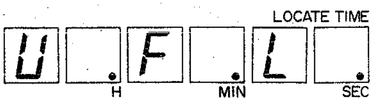
	Display	Contents	Description and Notes
1	(OVERFLOW)  	It is displayed when the time has exceeded the upper limit of the time display range. (LOCATE TIME section) 1. In CTL absolute mode (A) When a higher value than 81H14M26S820MS (44.056k), 81H09M34S645MS (44.1k) or 74H33M55S455MS (48k) is displayed on the locate time address. 1) The cue memory or storing of the IN, OUT, PRE, POST or START point was intended. 2) Up shift operation was intended. 3) LOC or LOC-PLAY was intended.	This is not a failure, but a status display for an operation error.
		(B) The result of the operation becomes higher than 81H14M26S820MS (44.056k), 81H09M34S645MS (44.1k) or 74H33M55S455MS (48k).	If this indication is displayed when ⊞ or ⊟ key is pressed, press ⊜ key and [CLR] key, and then input the digits again.
		2. In CTL relative mode and timer counter mode (A) A higher value than 9H59M59S999MS is displayed on the locate time address. 1) The cue memory or storing of the IN, OUT, PRE, POST or START point was intended. 2) Up shift operation was intended. 3) LOC or LOC-PLAY was intended.	
		(B) The result of the operation becomes higher than 9H59M59S999MS.	If this indication is displayed when ⊞ or ⊟ key is pressed, press ⊜ key and [CLR] key, and then input the digits again.

	Display	Contents	Description and Notes
		3. In TC absolute mode (A) When a higher valume than 23H59M59S29F (NDF, DF), 23H59M59S24F (25F/S) or 23H59M59S23F (24F/S) is displayed on the locate time address. 1) The cue memory or storing of the IN, OUT, PRE, POST or START point was intended. 2) Up shift operation was intended. 3) LOC or LOC-PLAY was intended. If the display changes when CTL absolute, CTL relative, timer and TC modes are switched from one to another mode, refer to the following Table 1. (TAPE TIME section) 1. When CTL absolute mode is changed to CTL relative mode, the value subtracting the tape time base from the absolute time becomes a higher value than 9H59M59S999MS. 2. In CTL relative mode or timer counter mode, the tape time has exceeded 9H59M59S999MS. * Tape time base It is the time indication in absolute mode which means the tape time "0" in the relative mode. This value can be changed to a desired value by using the UP SHIFT function in relative mode. The initial value is 0. Tape time base = (absolute time) - (relative time)	

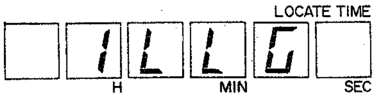
Table 1

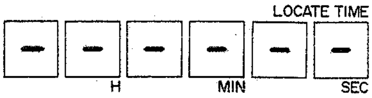
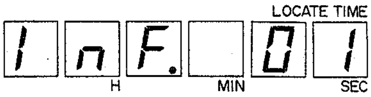
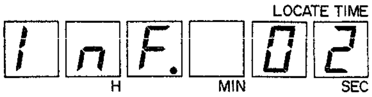
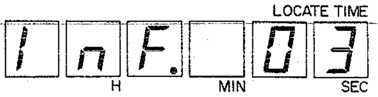
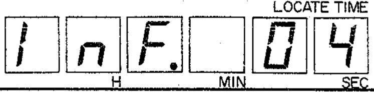
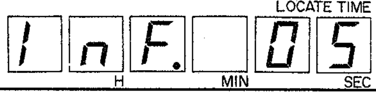
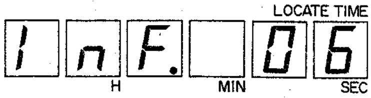
Mode switching	Overflow display
ABS → REL ABS → TMR	9H59M59s999MS < [The value displayed on the locate time address] - (TAPE TIME BASE)
TC → REL TC → TMR	9H59M59s999MS < [The value displayed on the locate time address] + (TC OFFSET*) - (TAPE TIME BASE)
REL → ABS TMR → ABS	81H14M26s820MS(44.056k) 81H09M34s645MS(44.1k) 74H33M55s455MS (48K) } < [The value displayed on the locate time address] + (TAPE TIME BASE)
TC → ABS	81H14M26s820MS (44.056k) 81H09M34s645MS (44.1k) 74H33M55s455MS (48K) } < [The value displayed on the locate time address] + (TC OFFSET*)
ABS → TC	23H59M59s29F (NDF, DF) 23H59M59s24F (PAL) 23H59M59s23F (FILM) } < [The value displayed on the locate time address] - (TC OFFSET*)
REL → TC TMR → TC	23H59M59s29F (NDF, DF) 23H59M59s24F (PAL) 23H59M59s23F (FILM) } < [The value displayed on the locate time address] + (TAPE TIME BASE) - (TC OFFSET*)

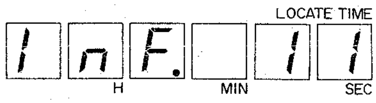
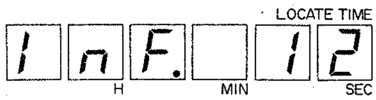
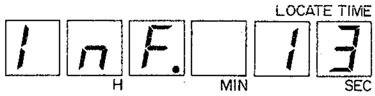
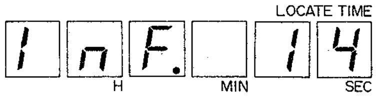
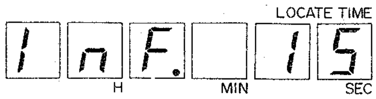
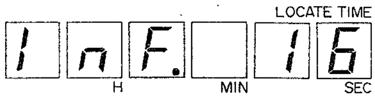
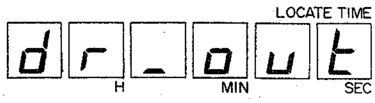
＊ : The TC OFFSET means the offset of CTL and time code.

	Display	Contents	Description and Notes
2	(UNDERFLOW)  	It is displayed when the time has exceeded the lower limit of the time display range. (LOCATE TIME section) 1. In CTL absolute mode, the result of the operation becomes a minus quantity.	This is not a failure, but a status display for an operation error.
		2. In CTL relative mode and timer counter mode (A) A lower value than -9H59M59S999MS is displayed on the locate time address. 1) The cue memory or storing of the IN, OUT, PRE, POST or START point was intended. 2) Up shift operation was intended. 3) LOC or LOC-PLAY was intended.	
		(B) The result of the operation becomes lower than -9H59M59S999MS.	If this indication is displayed when ⊞ or ⊟ key is pressed, press ⊜ key and [CLR] key, and then input the digits again.
		3. In TC absolute mode, the result of the operation becomes a minus quantity.	
		4. When CTL absolute mode is changed to CTL relative/timer mode, the value subtracting the tape time base from the value displayed on the locate time address becomes lower than -9H59M59S999Ms.	
		5. when TC absolute mode is changed to CTL relative/timer mode, the value adding the TC offset* and subtracting the tape time base becomes lower than -9H59M59S999MS.	(*) TC OFFSET: Offset of the CTL and time code

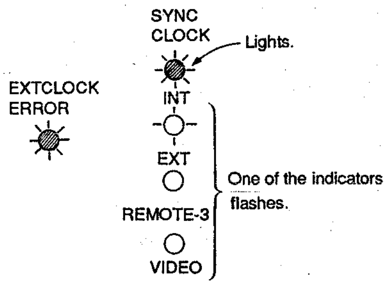
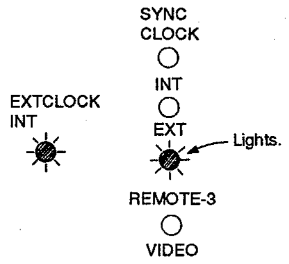
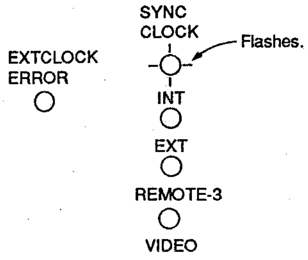
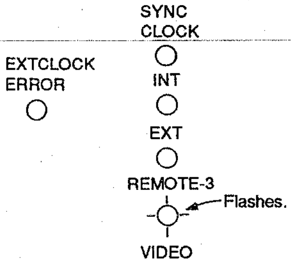
	Display	Contents	Description and Notes
		(TAPE TIME section) 1. When CTL absolute mode is changed to CTL relative mode, the value subtracting the absolute time from the tape time becomes lower than -9H59M59S999MS. 2. In CTL relative mode or timer counter mode, the tape time becomes less than -9H59M59S999MS.	

	Display	Contents	Description and Notes
3	(ILLEGAL OPERATION) 	It is displayed when one of the following key operations is performed. (1) A/P key is pressed when the OUT point is lower than the IN point. (2) RTN (RTN PLAY) key is pressed when the interval between the START and END points is within 1 sec. (3) Storing the PRE/POST ROLL time was intended when the time is minus or more than 1 H. (4) SLAVE key on the slave unit (with the bit switch set to SLAVE) is pressed when the master unit (with the bit switch set to MASTER) is not stopped. (5) During synchronized operation, changing the sync offset time was intended on the slave unit when the master unit was not in PLAY, STOP, FF or REW mode, or storing the sync offset time was intended when the time was more than 10 H. (6) Storing the sync offset was intended when the synchronized operation was not being performed. (7) The slave key on the master unit is pressed. (8) The slave key is pressed when the master unit does not exist. (9) The slave key on the master unit is pressed when the Fs of the slave unit is different. (10) The slave key is pressed when not in CTL (absolute/relative) mode.	This is not a failure, but a status display for an operation error.

	Display	Contents	Description and Notes
4	(TIME OUT 0) 	The sector clock signal has not been received on RM-3348.	1. Check if the remote cable is connected properly. 2. Check if the power of the PCM-3348 is turned on. 3. If 1 and 2 are correct, check the sector sync signal circuit of CN board, RM board and SY board of RM-3348 in sequence.
5	(NACK CRC ERROR) 	During the communication of SRIF3, the CRC error occurred in the data sent from RM-3348 to PCM-3348.	1. This is not a failure, but an error by noise. 2. If the connection is made, it is a hardware failure. Check the transmitter section of RM-3348 and the receiver section on MC board of PCM-3348.
6	(NACK CRC ERROR) 	PCM-3348 received the command not specified by SRIF3.	The SPU1 - 4 and DET boards which correspond to 25 - 48 digital audio channels are not installed correctly, and operation on those channels is performed. If the above reason is not applicable, it is a hardware failure. Check the data bus on MC-33/33A board of PCM-3348. If the error occurred when the power is turned on/off, it is not a problem.
7	(NACK OVERRUN ERROR) 	During the communication of SRIF3, a new command reached before PCM-3348 has not returned the answer to the previous command received.	This is a hardware failure. Check the transmitter section of RM-3348, especially the circumference of the timing circuit of the DMA controller.
8	(NACK MEMORY WRITE ERROR) 	Writing the data in the memory of PCM-3348 by the command from RM-3348 has failed.	This is a hardware failure. Check MC-33/33A board of PCM-3348.
9	(NACK MEMORY READ ERROR) 	Reading the data in the memory of PCM-3348 by the command from RM-3348 has failed.	This is a hardware failure. Check MC-33/33A board of PCM-3348.
10	(NACK OPERATION ERROR) 	PCM-3348 received the command specified by SRIF3, but cannot execute it presently.	This is not a failure, but a status display for an operation error. TRC-1 board does not function correctly.

	Display	Contents	Description and Notes
11	(TIME OUT1) 	During the communication of SRIF3, PCM-3348 has not returned the answer to the command received within the specified period of time.	1. Check MC board on PCM-3348. If the error occurs when the power is turned on or off, it is not a problem. 2. Check the RSTB line in RM-3348.
12	(CRC ERROR) 	During the communication of SRIF3, the CRC error occurred in the data sent from PCM-3348 to RM-3348.	1. This is not a failure but an error by noise. 2. If the error occurs successively, check the transmitter section on MC-33/33A board of PCM-3348 and the receiver section of RM-3348, or the remote cable. If the error occurred when the power is turned on or off, it is not a problem.
13	(TRANSFER ERROR) 	Error "5" is displayed 10 times successively.	If the connection is made, this is a hardware failure. Check the transmitter section of RM-3348 and the receiver section on MC-33/33A board of PCM-3348.
14	(RECEIVER ERROR) 	CRC error "11" is displayed 10 times successively.	Check the RSTB line in RM-3348.
15	TIME OUT 2 	During the communication of SRIF3, PCM-3348 returned the wait command against the previous command, but has not returned the return command.	This is a hardware failure. Check MC-33/33A board of PCM-3348.
16	(ABORT) 	When the wait command is returned from PCM-3348, the next command is sent to PCM-3348 before PCM-3348 returns the return command, therefore the previous command is aborted.	This is not a failure, but occurs when an input is made too quickly. If necessary, send the previous command again as it was not received.
17	DROP OUT 	Recording, rehearsal or automatic punching was intended on a tape with no CTL signal recorded in insert recording mode.	64) Record the CTL signal on the tape and perform the desired operation.

1-3. SYNC CLOCK INDICATORS

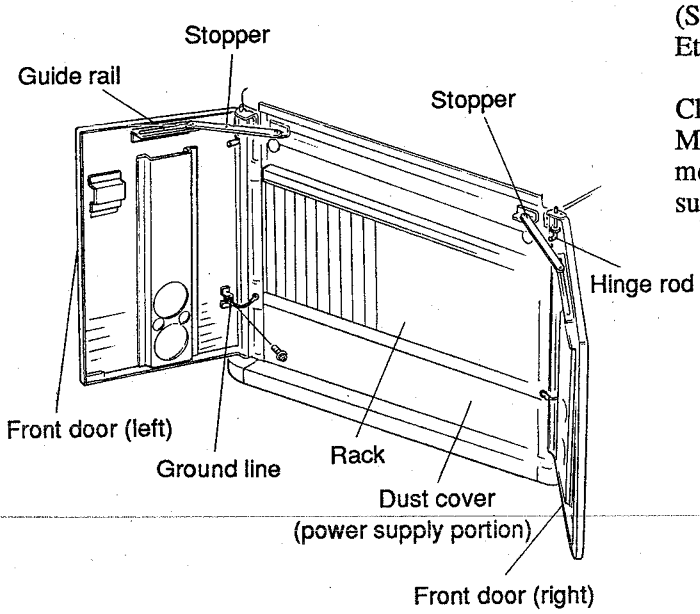
Indicator	Possible Cause and Phenomenon	Countermeasures
 SYNC CLOCK Lights. EXTCLOCK ERROR INT EXT One of the indicators flashes. REMOTE-3 VIDEO	The correct external sync signal for the sync clock setting has not been input. Therefore, PCM-3348 operates with the internal clock (INT). This is not a failure.	Check the external sync signal input for the EXT, REMOTE-3 and VIDEO settings respectively, and input the correct signal if necessary.
 SYNC CLOCK INT EXTCLOCK INT EXT Lights. REMOTE-3 VIDEO	The external sync mode is set for the REMOTE-3 input signal, but the sector sync is not applied.	Check the sector sync signal input for the REMOTE-3 input, and input the correct signal if necessary.
 SYNC CLOCK Flashes. EXTCLOCK ERROR INT EXT REMOTE-3 VIDEO	When the INT indicator flashes successively, the internal clock generation circuit for the word sync signal, etc. does not operate correctly. The INT indicator flashes for several seconds after the sync clock setting is changed. This is not a failure.	Check the internal clock generation circuit block on CK-31 board.
 SYNC CLOCK EXTCLOCK ERROR INT EXT REMOTE-3 Flashes. VIDEO	The external sync mode is set for the VIDEO input signal, but it does not operate correctly. On CK board, the VARI PLL block is not phase-locked. Therefore, the raw output of the WORD PLL on CK board is used as the reference for the work sync signal.	Check the VARI PLL block on CK-31 board.

SECTION 2
SERVICE INFORMATION

2-1. GENERAL INSTRUCTIONS

1. Handling and removal of the front door

The opening angle of the front door is restricted by the stopper. When opening the front door more widely, such as in case of pulling out a PC board near the end of the rack to adjust, remove the stopper from the guide rail. If you wish to completely remove the front door from the body, remove the ground line. Then, pull down the hinge rod and thereafter slant the front door slightly toward you and pull it out upward.



2. Attaching and Removal of the board, connector, etc.

Before attaching or removing the board, connector, etc., turn off the power switch of the PCM-3348. Otherwise, electrical parts will be damaged.

3. Cleaning the head

Before adjusting the electromagnetic converters (REC board, DET board), clean the recording head and playback head. If the head is adjusted in stained condition is adjusted, the adjustment will not be correctly made or desired results will not be obtained.

Cleaning tools
Cleaner (Head cleaning stick)
(Sony part No. 3-601-330-99)
Ethyle alcohol

Cleaning method
Moisten the cleaning piece with ethyle alcohol, and move it in horizontal direction, touching the head surface softly.

4. Inspection and alignment tape

The following tapes are required as standard tapes to inspect or adjust PCM-3348.

1) AR3348-1 Tracking
   (Sony part No. 8-960-080-11)
   for adjusting the height of the guide roller (2)
   for adjusting the height and azimuth of the playback and recording heads

2) AR3348-2 DET ADJ
   (Sony part No. 9-960-080-12)
   for adjusting the DET board

3) Standard tape for recording C1D-1/2AJ
   (Sony part No. 8-873-001-90)
   for adjusting the REC board

In addition to the above standard tapes, a normal tape is required in the following cases.

4) for adjusting the tape transport system (tension arm, guide roller, tape shifter, tape tension, etc.)

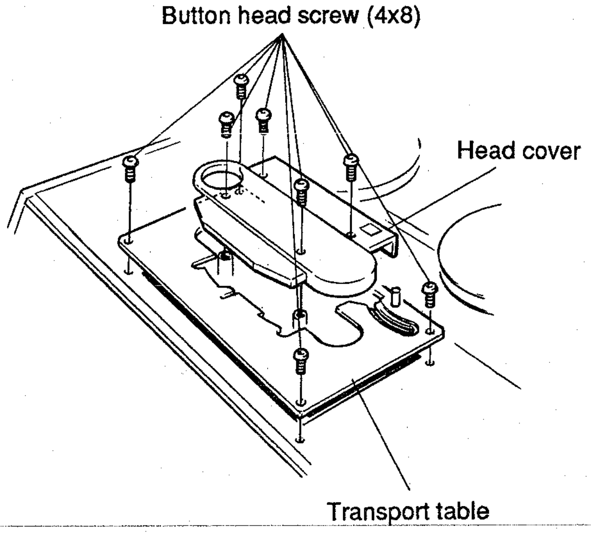
5) for confirming correction capacity, CRC error rate, punching in/out, etc.

We recommend that you prepare a tape for adjusting the tape transport system 4) separately from the tape used for item 5) because the edge or surface of the tape used for 4) may be damaged during adjustment. On the other hand, a tape used for 5) should be a virgin tape or have the equivalent quality.

2-2. REMOVAL OF THE HEAD COVER AND TRANSPORT TABLE

(Refer to the following figure.)

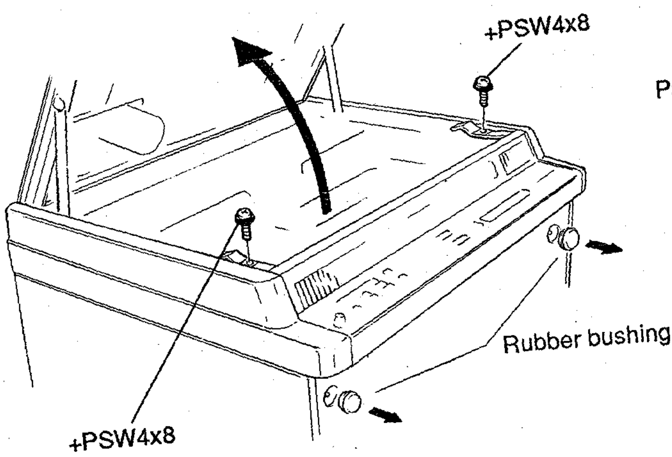
1. Set up a tape.
2. Put the tension disarm switch and turn the power switch OFF.
3. Remove the four button head screws (4x8) to remove the head cover.
4. Eject the tape.
5. Remove the four button head screws (4x8) and remove the transport table.



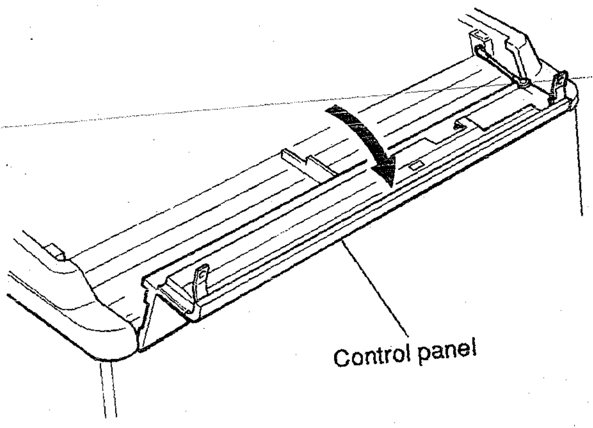
2-3. OPENING THE CONTROL PANEL
(Refer to the following figures.)

1. Remove the rubber bushing.
   Pull the lock shaft toward you with two lock release knobs to open the mechanical chassis and remove the two +PSW4x8 screws.

   Lock release knob (Sony Part No. J-6222-610-A)


+PSW4x8
Rubber bushing
+PSW4x8

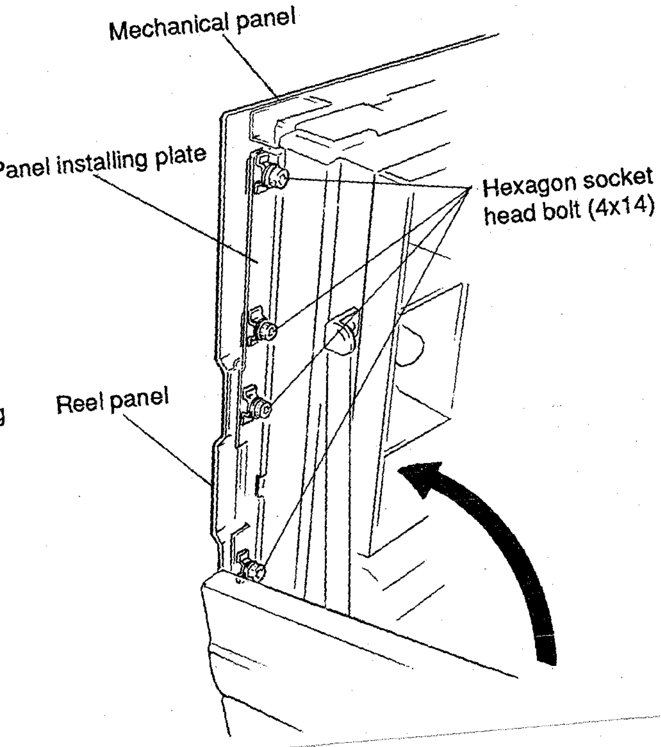
2. Pull down the control panel in the direction of the arrow mark.


Control panel

2-4. REMOVAL OF THE MECHANICAL PANEL AND REEL PANEL
(Refer to the following figure.)

Loosen and remove the eight hexagon socket head bolts (4x14) with the chassis opened.

*The bolts are caught by the panel installation plate when they are removed from the panel.


Mechanical panel
Panel installing plate
Hexagon socket head bolt (4x14)
Reel panel

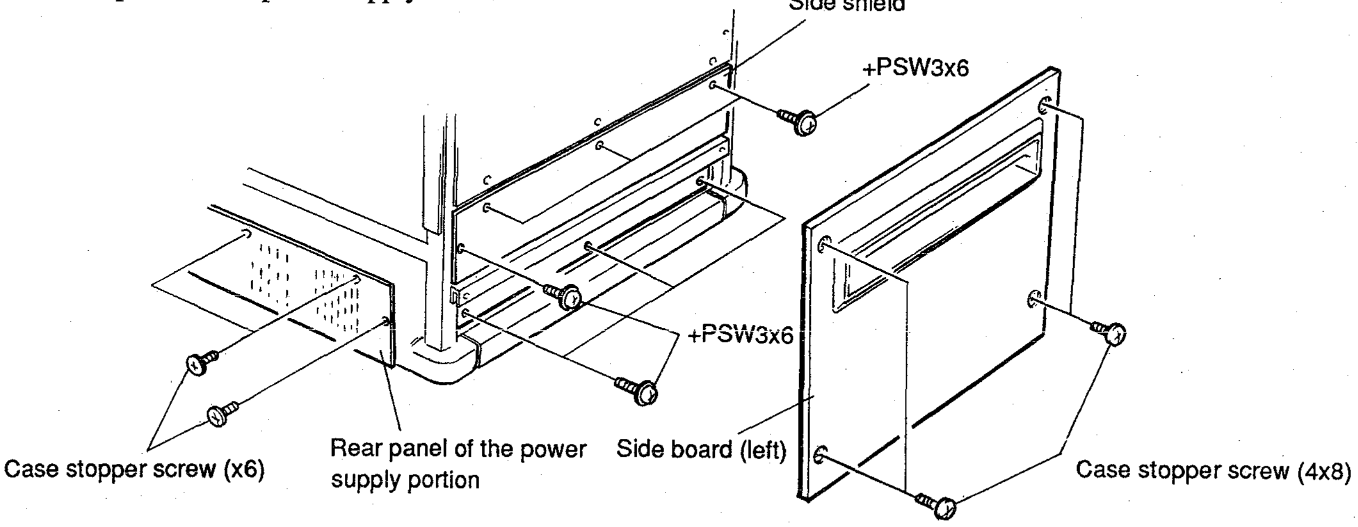
2-5. REMOVAL OF THE POWER SUPPLY BLOCK

(Refer to the following figures.)

1. Remove the four case stopper screws (4x8) and take away the side board (left).

2. Remove the seven +PSW3x6 screws and take away the side shield of the power supply block.

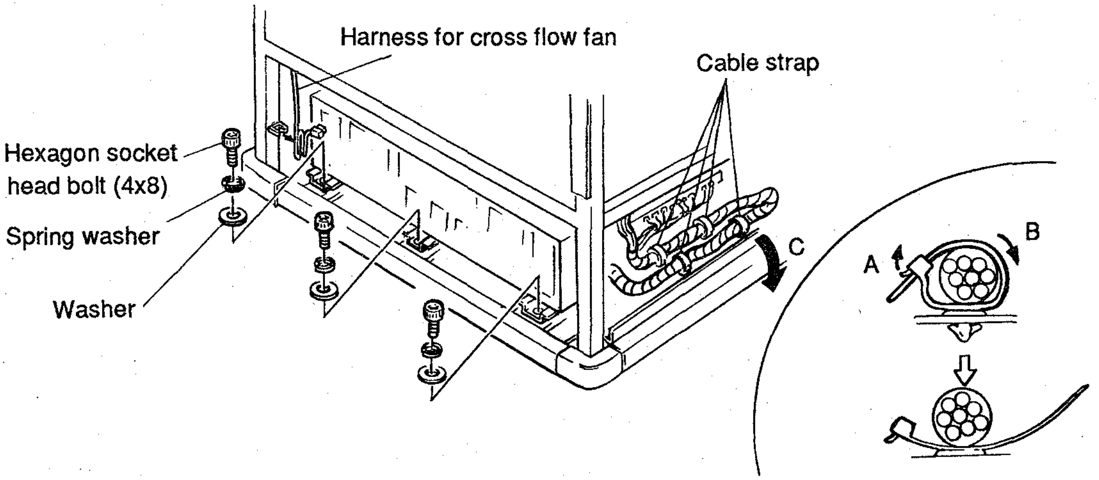
3. Remove the six case stopper screws and take away the rear panel of the power supply block.


Side shield
+PSW3x6
+PSW3x6
Case stopper screw (x6)
Rear panel of the power supply portion
Side board (left)
Case stopper screw (4x8)

4. Remove the harness for the cross flow fan from the harness clamp.

5. While pulling up the A portions of the four cable straps, pull them in the direction of B to remove the harness of the power supply. Then, pull it out in the direction of C.

6. Remove the three hexagon socket head bolts (4x8), the spring washers and washers.


Harness for cross flow fan
Cable strap
Hexagon socket head bolt (4x8)
Spring washer
Washer
C
A
B

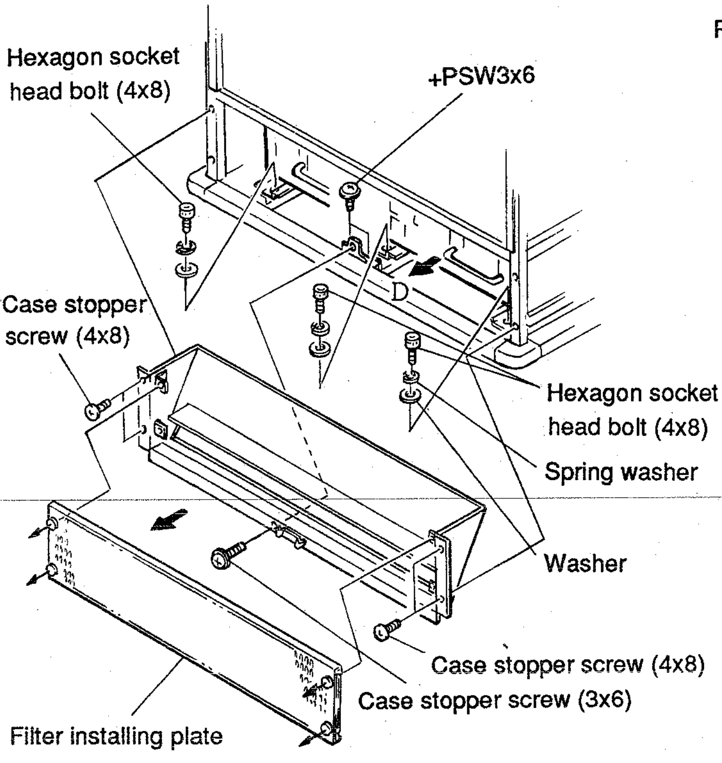
7. Pull the knob of the filter installing plate to remove.

8. Remove the four case stopper screws (4x8) and one case stopper screw (3x6) and take away the rectifier plate.

9. Remove the two +PSW3x6 screws and take away the rectifier plate receptacle.

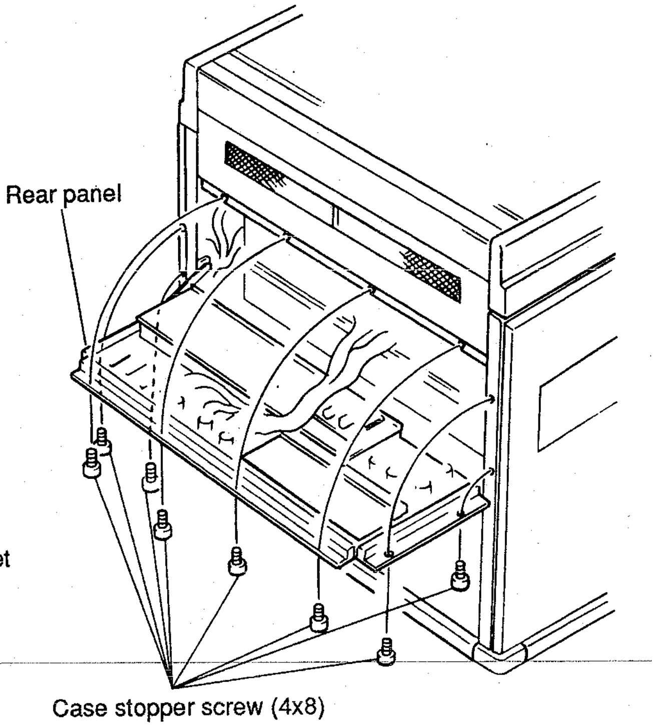
10. Remove the three hexagon socket head bolts (4x8), the spring washers and washers and pull out the power supply block in the direction of D.

✻ The power can be turned on even when the power supply block is pulled out.


Hexagon socket head bolt (4x8)
+PSW3x6
D
Case stopper screw (4x8)
Hexagon socket head bolt (4x8)
Spring washer
Washer
Case stopper screw (4x8)
Case stopper screw (3x6)
Filter installing plate

2-6. REMOVAL OF THE REAR PANEL
(Refer to the following figure.)

Remove the eight case stopper screws (4x8) and bring down the rear panel in the direction of the arrow mark.


Rear panel
Case stopper screw (4x8)

2-7. USE OF THE EXTENSION BOARD FOR ADJUSTMENT AND CHECK

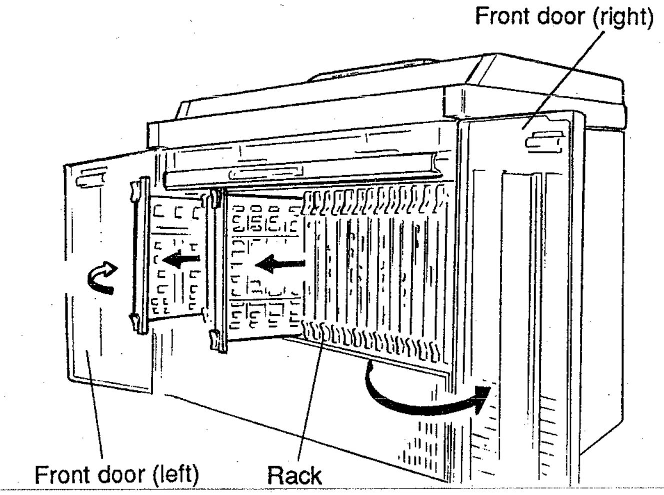
(Refer to the following figures.)

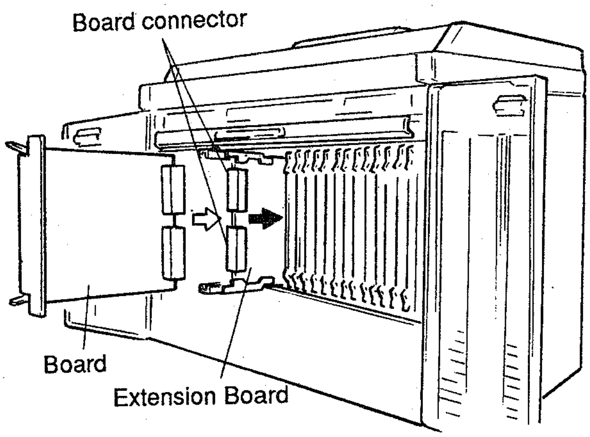
1. Open the front doors right and left and remove the two, upper and lower, screws on each board. Then, open the board lever up and down and pull out the board in the direction of the arrow mark.

2. After pulling out the board, insert the extension board in the direction of the arrow mark.

3. Insert the board into the board connector of the extension board in the direction of the arrow mark.

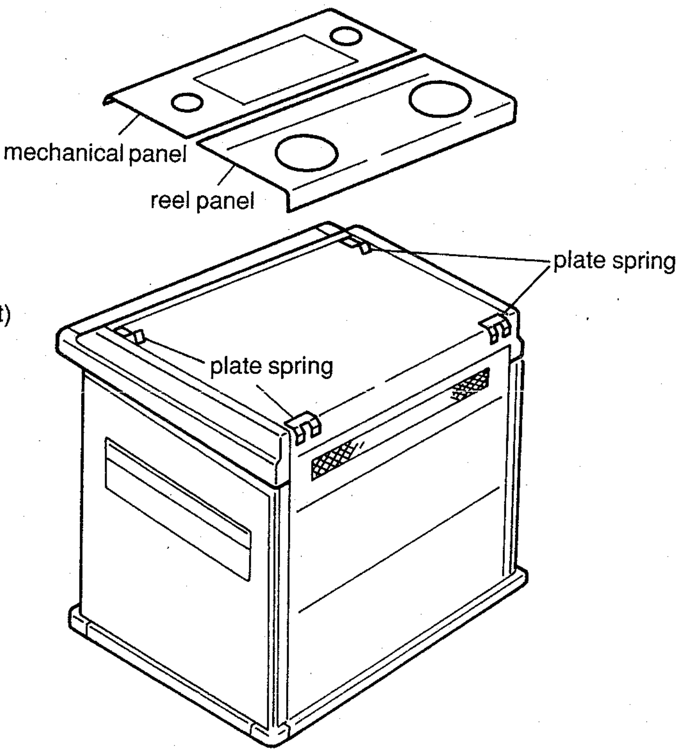
Caution: Before attaching or removing the board, turn the power switch OFF.


Front door (right)
Front door (left)
Rack

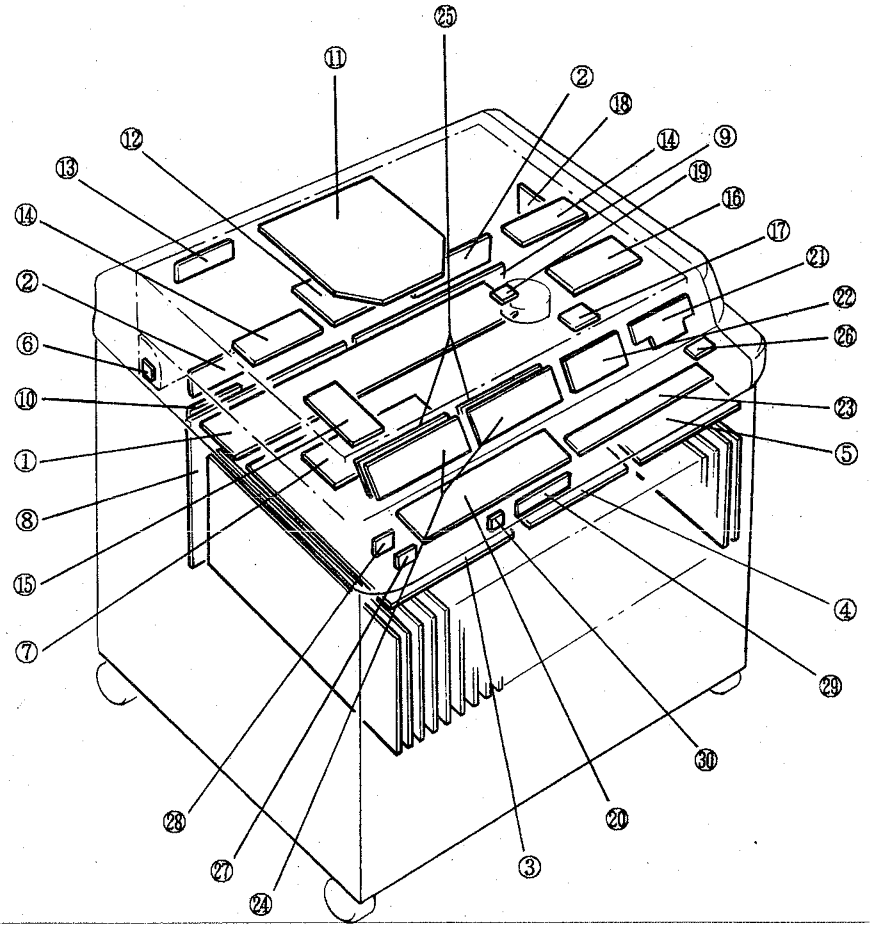

Board connector
Board
Extension Board

2-8. CAUTION FOR THE REEL PANEL AND MECHNICAL PANEL REPLACEMENT

Greasing conductive grease (J-6223-830-A) to four plate springs is required when replacing the reel panel and the mechnical panel or when grease on the plate springs is not enough.


mechanical panel
reel panel
plate spring
plate spring

2-9. LOCATION OF BOARDS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①MB-194
②PWT-1
③RLD-1
④RS-24
⑤CS-24
⑥FAM-14
⑦KC-17
⑧MB-195

⑨MB-196
⑩CN-250
⑪PRE-1
⑫REC-5
⑬FL-60
⑭GMT-1
⑮PMT-1
⑯PTN-1

⑰SW-311
⑱RG-23
⑲CRF-1
⑳KY-140
㉑KY-141
㉒KY-142
㉓KY-143
㉔LD-24

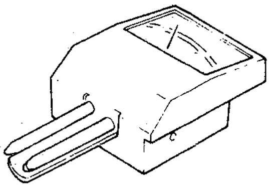
㉕DR-71
㉖VR-56
㉗VR-75
㉘JK-23
㉙TM-24
㉚PE-18

2-10. SERVICE TOOLS

Ref. N0.	Parts No.	Name	Remarks
J1	J-6041-680-A	Tentelometer	RS-24 board
J2	J-6103-340-A	Brake band guide positioning jig	
J3	J-6105-630-A	SRIF-1 checker	RS-24 board
J4	J-6221-270-A	Lower flange height adj. tool	for adjusting the height of the tape guide
J5	J-6221-280-A	Lower flange height reference block	
J6	J-6221-350-A	Tension adjustment tool (1)	for adjusting the position (LOW at T side, HIGH at S side)
J7	J-6221-360-A	Tension adjustment tool (2)	for adjusting the position (HIGH at T side, LOW at S side)
J8	J-6221-390-A	SERVO EXT board	CS-24, RS-24 and RLD-1 boards
J9	J-6221-400-A	SERVO GAIN adjuster	CS-24 and RS-24 boards
	J-6221-400-4	IC ROM MBM27C256-TRC-C6	TEST ROM
	J-6221-400-5	IC ROM MBM27C256-TRC-C7	TEST ROM
	J-6221-400-6	IC ROM MBM27C256-TRC-C12	TEST ROM
	J-6221-400-7	IC ROM MBM27C256-TRC-C13	TEST ROM
J10	J-6222-180-A	Extension board (A)	Extension board for the board within the board within the card rack wow check, REC-5 board
J11	J-6222-290-A	Potentional device	for potentional adjustment
J12	J-6222-480-A	Tape guide adj. table	for adjusting the height of the tape guide
J13	J-6222-490-A	Torque driver bit set	for installing the tape guide and head for adjusting the tape transport system for installing the reel table and head base unit
J14	J-6223-280-A	Extension cable (Head)	for adjusting the head
J15	J-6222-520-A	Lamp pull device (MU-043)	KY-143 board and the system control key
J16	J-6252-520-A	Torque driver (12kg.cm)	for installing the tape guide and head for adjusting the tape transport system
	J-6252-530-A	Torque driver (26kg.cm)	for installing the reel table and head base unit
J17	J-6222-560-A	Separate cord 8S1N2-B-SC3	for input, for J/UC model (Cannon No. 3 HOT)
	J-6220-950-A	Separate cord 8S1N2-B-SC2	for input, for EK model (Cannon No. 2 HOT)
J18	J-6222-570-A	Separate cord 8S2N1-B-SC3	for output, for J/UC model (Cannon No. 3 HOT)
	J-6220-960-A	Separate cord 8S2N1-B-SC2	for output, for EK model (Cannon No. 2 HOT)

Ref. NO.	Parts No.	Name	Remarks
J19	2-034-697-00	Cleaning piece	for cleaning guide rollers (1) and (2)
J20	3-601-330-99	Cleaner (HEAD CLEANING STICK)	for cleaning the head, tape guide, guide rollers (1) and (2), capstan roller and tension roller
J21	J-6026-240-A	Adjustment screwdriver	AD-36, ARP-2, CK-31, CS-24, CTL-2, DA-25, DET-6, GMT-1, REC-5, RS-24, and TC-50 boards
J22	7-700-736-00	L-shaped hexagonal wrench	Hexagonal wrench set size: 1.27mm, 1.4mm, 1.5mm, 1.58mm, 2.0mm, 2.5mm, 3.0mm, 4.0mm, 5.0mm, 6.0mm, 8.0mm, 10.0mm
J23	7-721-010-07	Grip ring pliers (ST-01 type)	for replacing the capstan clutch
J24	7-721-130-50	Ball point L-wrench set (BLX-6)	ø = 1.5mm, 2.0mm, 2.5mm, 3.0mm, 4.0mm, 5.0mm
J25	7-732-050-30	Fan-shaped gauge 100gs	for adjusting the brake torque
	7-732-050-50	Fan-shaped gauge 500gs	
J26		Head eraser	HE-4 (SONY) DET-6 board
J27	9-911-053-00	Thickness gauge	for clearance measurement
J28	J-6222-580-A	Microscope for head height measurement	for measurement of head track pattern to be recorded on 1/2" 1/4" tape for adjusting the height of the PB head and REC head
	J-6222-581-1	Glass plate	for repair
	J-6222-581-4	Miniature electrical bulb	for repair
	J-6222-581-5	Eye lens	for repair
	J-6222-581-6	Object lens	for repair
J29	J-6223-500-A	DIGITAL SG-36	for DA-25 board adjustments
	J-6223-500-3	IC ROM MBM27C 256A-SGC 2V1	TEST ROM
	J-6223-500-4	IC ROM MBM27C 256A-SGD 2V1	TEST ROM
J30	J-6223-840-A	Carring case	for containing PCM-3348 service tools
J31	J-6222-610-A	Lock release knob	for opening the mechanical chassis
	J-6223-830-A	Conductive grease	for giving conductivity to the springs for the mechanical panel and reel panel
	7-662-010-04	SONY grease	SGL-505
	8-960-080-11	AR3348-1 TRACKING tape	for adjusting the height of the guide roller (2) for head alignment
	8-960-080-13	AR3348-2 DET ADJ tape	DET-6 board
	8-873-001-90	Blank tape for recording C1D-1/2AJ	CTL-2, ARP-2, DET-6 and REC-5 boards
		ARP adjustment standard tape	MRL-made 31L120, Reference fluxivity 200nWb/m

J1



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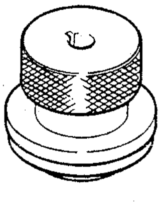

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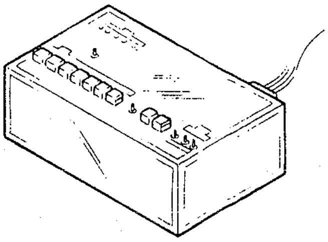

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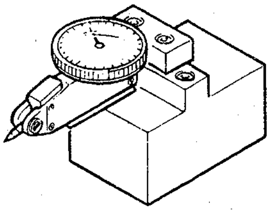

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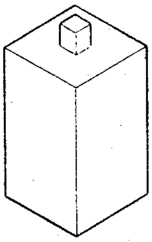

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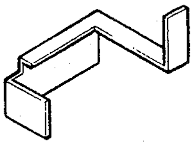

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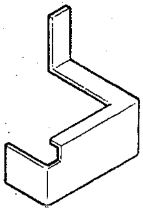

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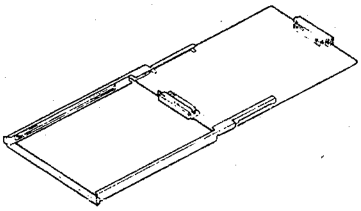

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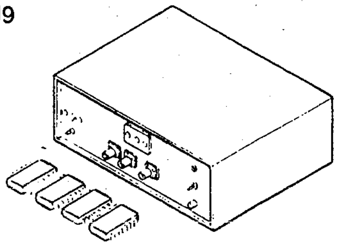

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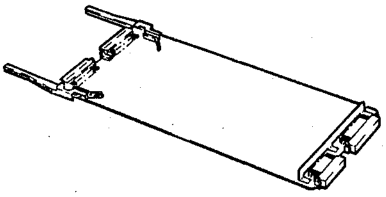

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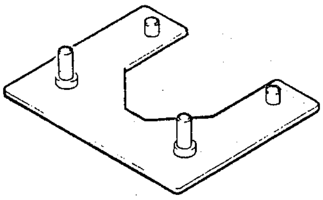

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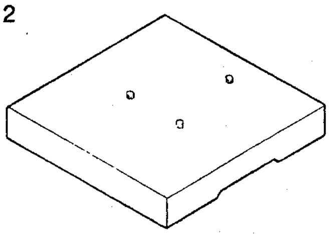

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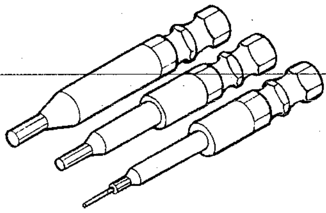

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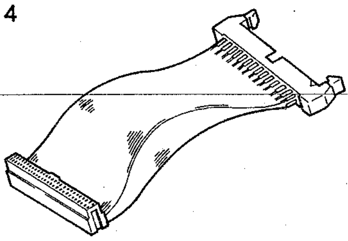

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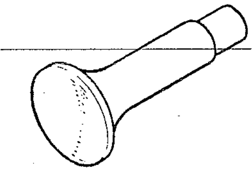

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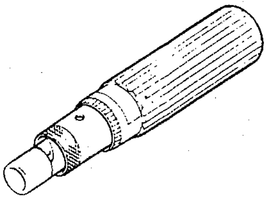

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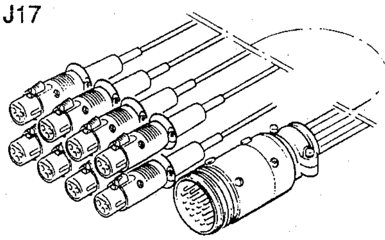

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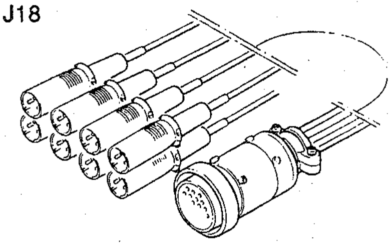

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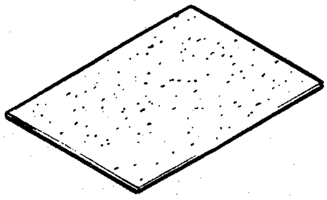

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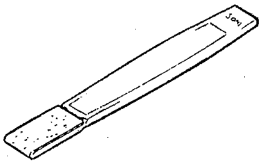

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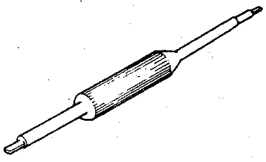

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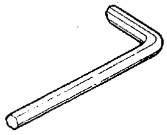

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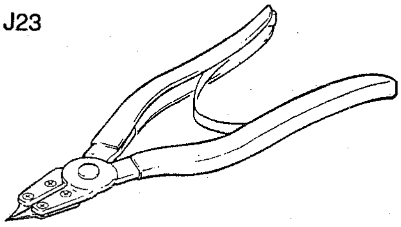

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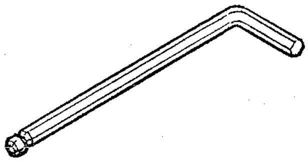

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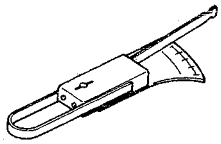

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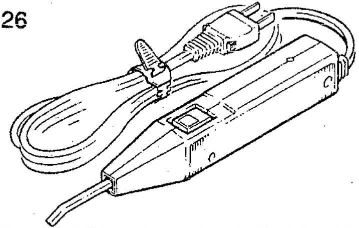

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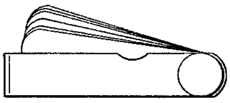

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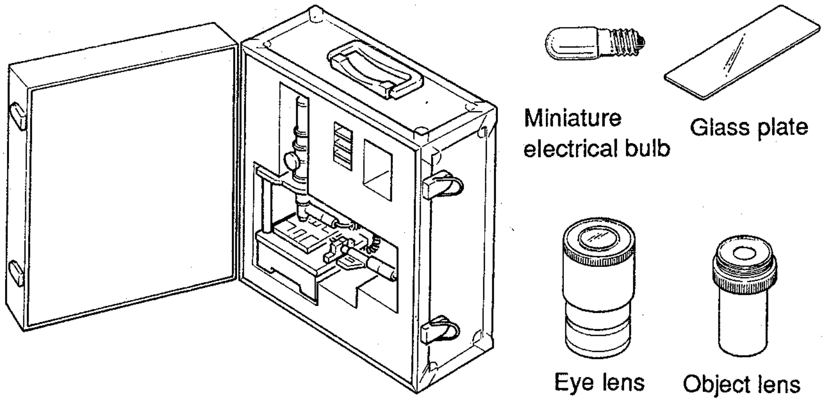
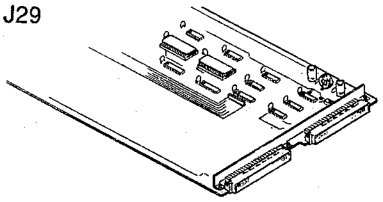

Miniature electrical bulb
Glass plate
Eye lens
Object lens

J29



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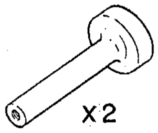
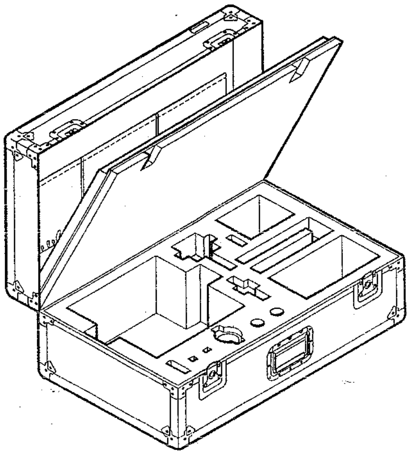
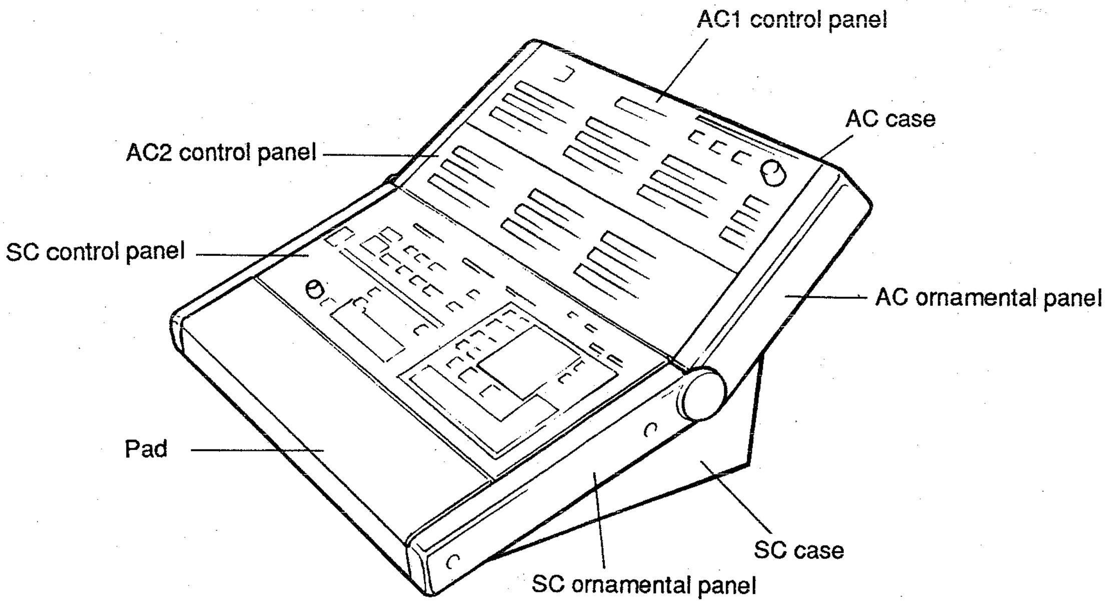


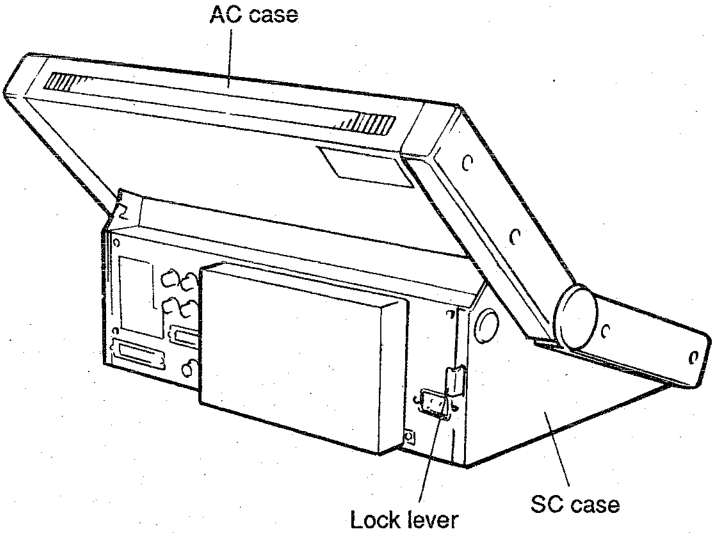
J30



SECTION 3
RM-3348 REMOTE CONTROL UNIT SERVICE INFORMATION

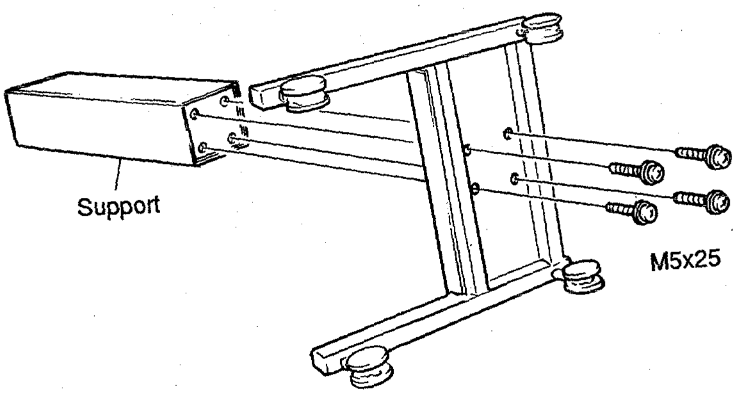
3-1. NAME OF PARTS


AC1 control panel
AC case
AC2 control panel
SC control panel
AC ornamental panel
Pad
SC case
SC ornamental panel

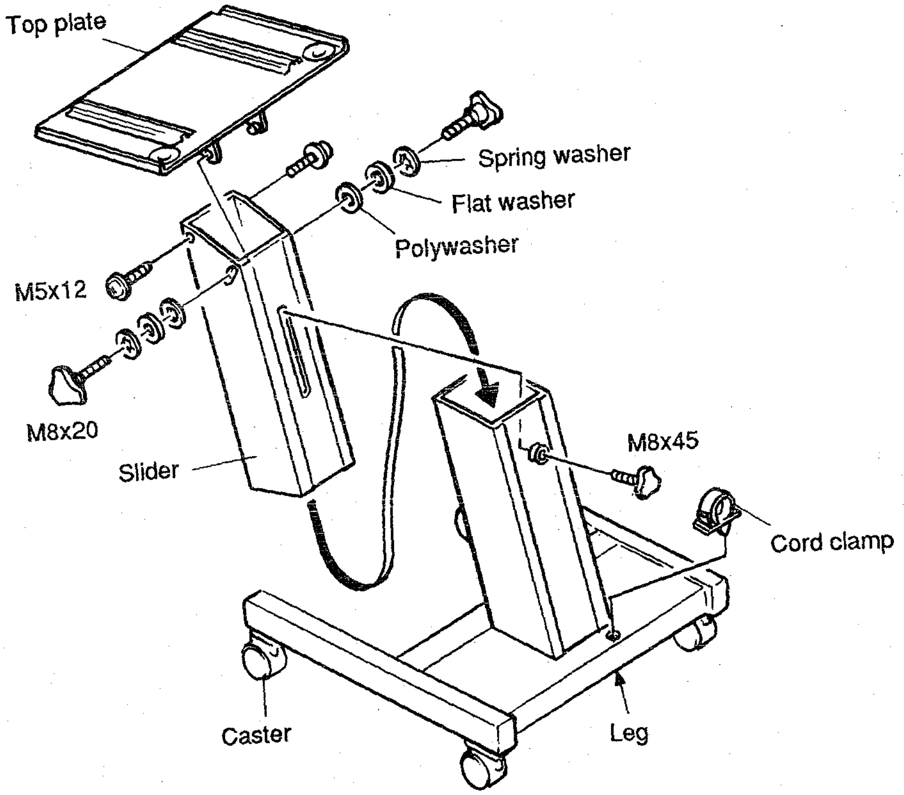

AC case
Lock lever
SC case

3-2. ASSEMBLY OF THE REMOTE STAND

1. Assembly of the foot

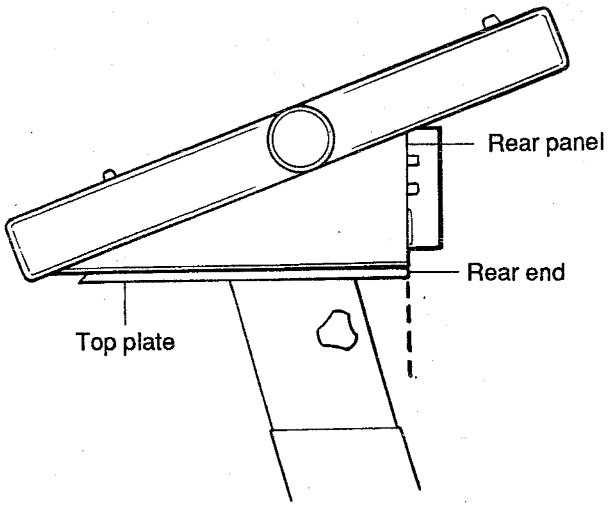

Support
M5x25

2. Installation of the slider and top plate

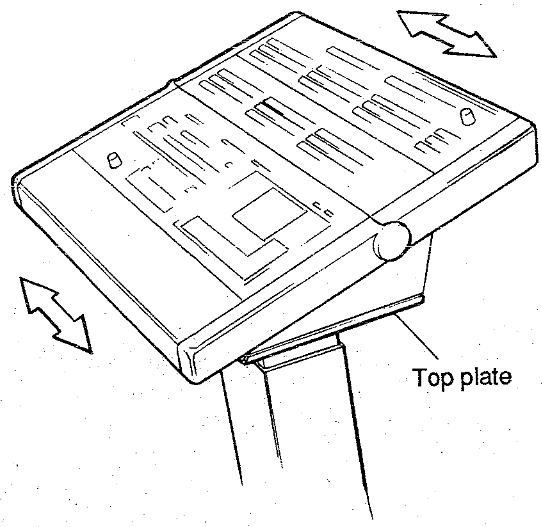

Top plate
Spring washer
Flat washer
Polywasher
M5x12
M8x20
Slider
M8x45
Cord clamp
Caster
Leg

3-3. INSTALLATION OF THE REMOTE UNIT ON THE REMOTE STAND

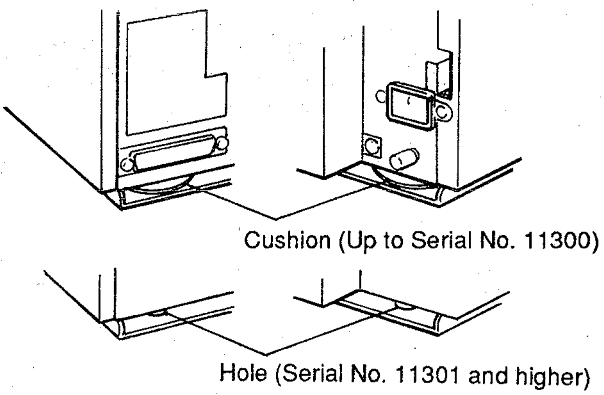
① Align the rear panel of the remote unit with the rear end of the remote stand top plate.


Rear panel
Rear end
Top plate

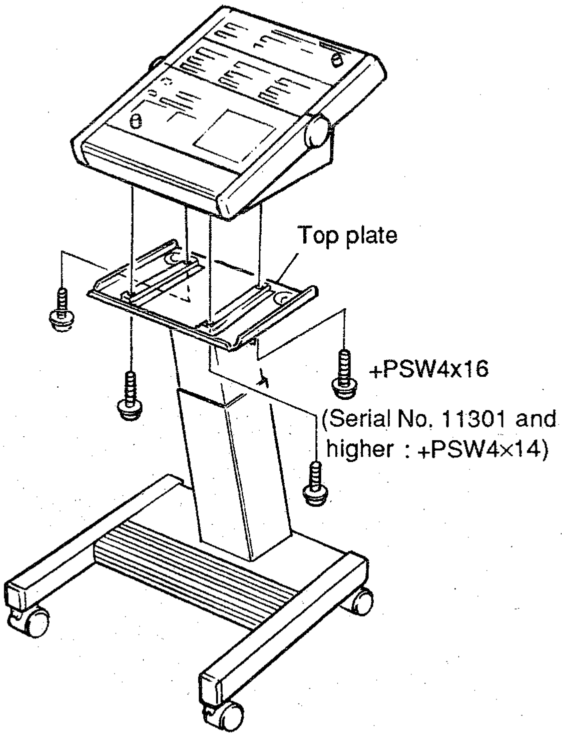
② Adjust the position of the remote unit so that it is located in the center of the remote stand top plate.



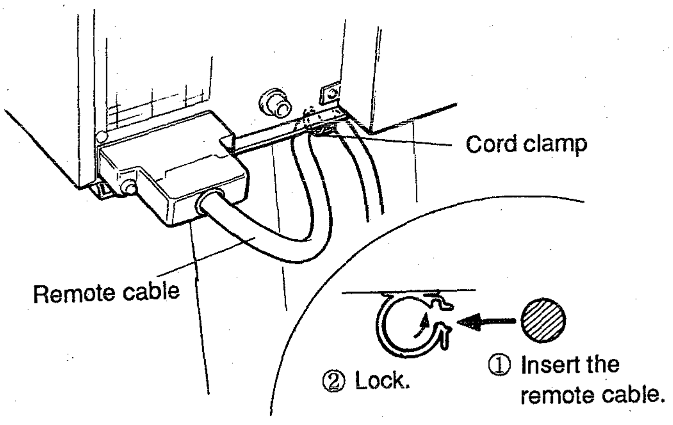
③ Check that the right and left rear feet of the remote unit are located in the center of the ring-shaped cushion (Serial No. 11301 and higher: hole) of the remote stand top plate.


Cushion (Up to Serial No. 11300)
Hole (Serial No. 11301 and higher)

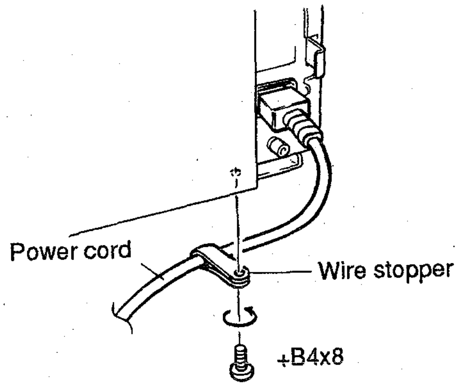
④ Temporarily secure the remote unit to the remote stand top plate from the bottom of the top plate with four +PSW4x16 (Serial No. 11301 and higher: +PSW4x14) screws. (When the screws cannot be inserted into the holes, slide the remote unit slightly backward and forward or right and left to adjust the position.) When all the four screws has been inserted in the holes, fasten them securely.


Top plate
+PSW4x16
(Serial No. 11301 and higher : +PSW4×14)

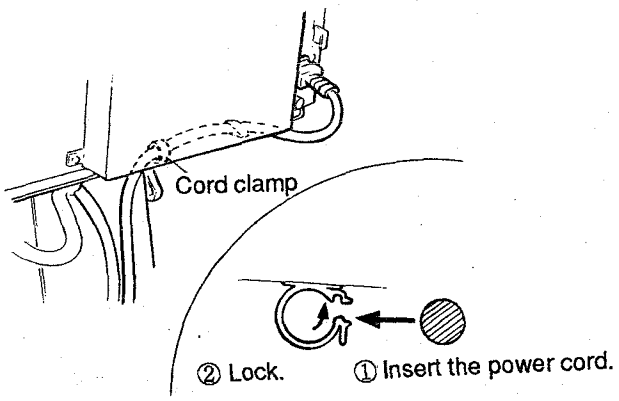
⑤ Secure the remote cable connecting the remote unit to the recorder with the cord clamp located at the bottom of the top plate.


Cord clamp
Remote cable
② Lock.
① Insert the remote cable.

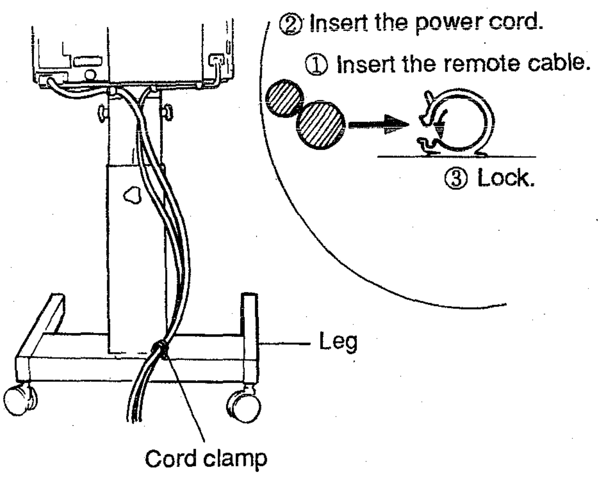
⑥ Pass the power cord through the wire stopper and secure the bottom of the top plate with a +B4x8 screw.


Power cord
Wire stopper
+B4x8

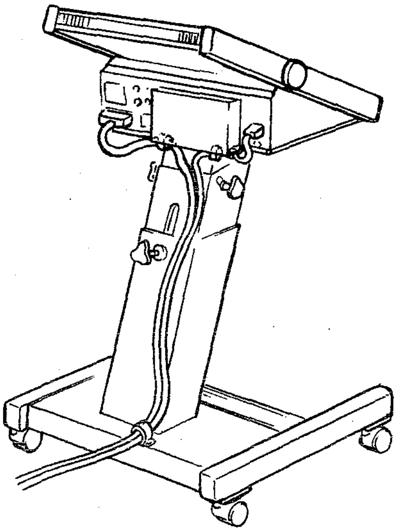
⑦ Secure the power cord with the cord clamp located at the bottom of the top plate.


Cord clamp
② Lock.
① Insert the power cord.

⑧ Secure the remote cable and the power cord with the cord clamp on the remote stand Leg.

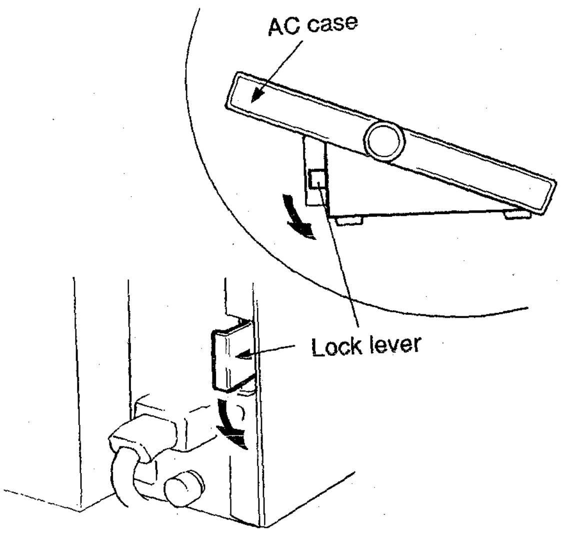

② Insert the power cord.
① Insert the remote cable.
③ Lock.
Leg
Cord clamp

· Assembled unit



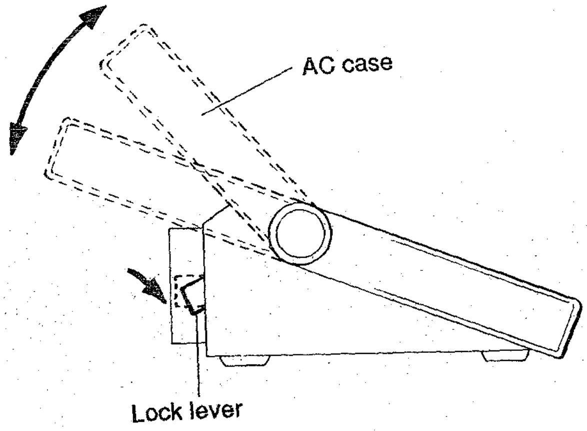
3-4. ANGLE ADJUSTMENT OF THE AC CONTROL PANEL

① Supporting the upper portion of the AC case with your right hand, push down the lock lever at the left rear portion of the SC case with your left hand.

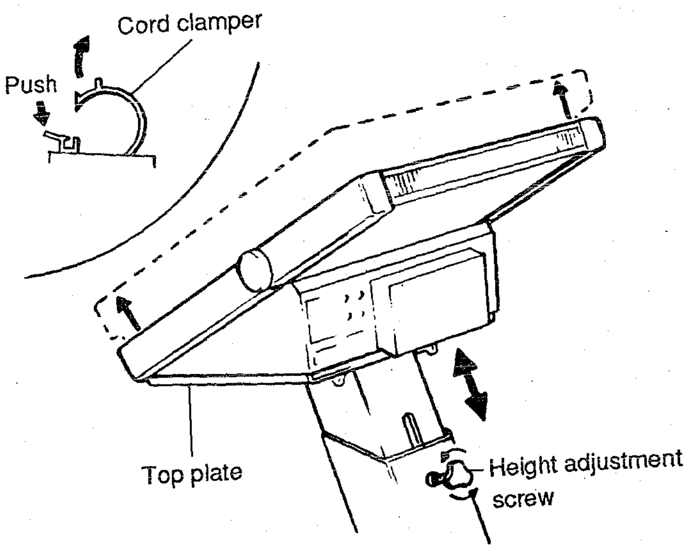

AC case
Lock lever

② While pressing the lock lever, adjust the angle of the AC case.

③ Release your left hand at the appropriate angle and move the AC case slightly backward and forward. Then, check that the lock lever is completely returned.


AC case
Lock lever

3-5. HEIGHT ADJUSTMENT

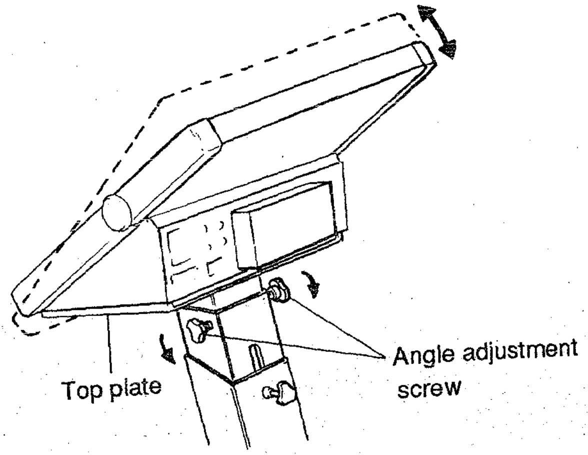

Cord clamper
Push
Top plate
Height adjustment screw

① Unlock the cord clamper on the base of the remote stand and remove the remote cable and power cord from the clamper.

② As the height adjustment screw is loosened, the top plate lowers.
To raise the top plate, loosen the height adjustment screw and pull up the top plate. After adjusting its height, tighten the height adjustment screw to secure the top plate.

③ Secure the remote cable and power cord with the clamper.

3-6. ANGLE ADJUSTMENT

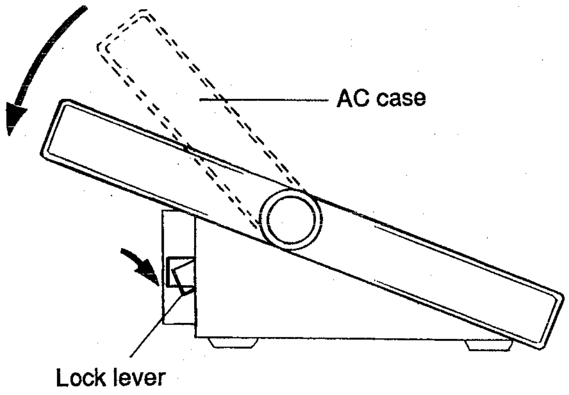

Top plate
Angle adjustment screw

Loosen the right and left angle adjustment screws and adjust the angle of the top plate. Then, fasten the angle adjustment screws to secure the top plate.

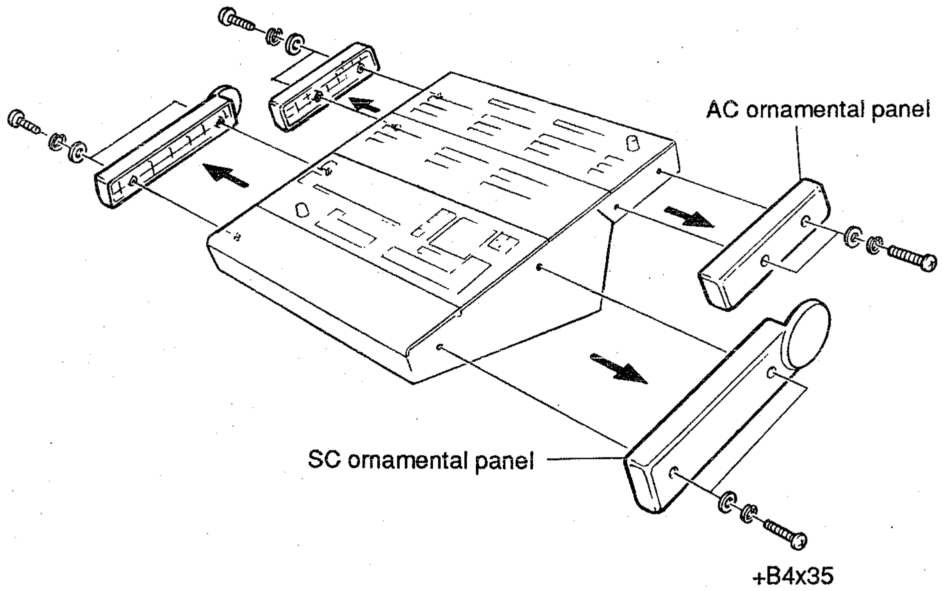
3-7. MAINTENANCE

3-7-1. Removal of the cover

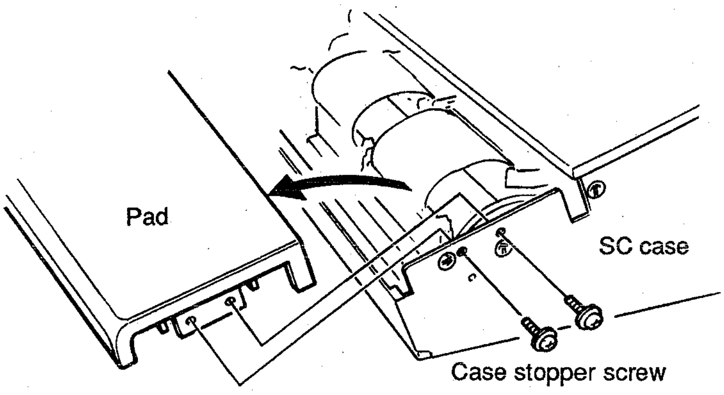
① Set the AC case to an angle as horizontal as possible (where the SC and AC panels are on the same plane).


AC case
Lock lever

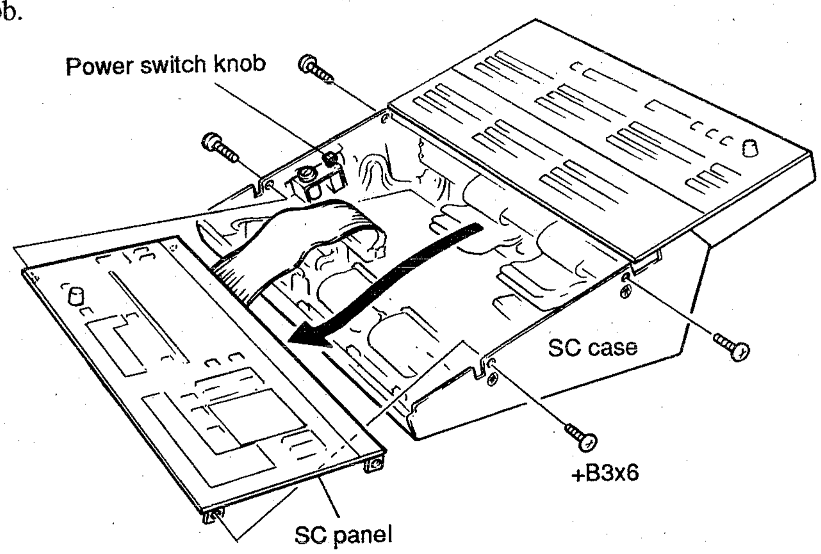
② Remove the +B4x35 screws (four each on right and left) to remove the AC and SC ornamental panels.


AC ornamental panel
SC ornamental panel
+B4x35

③ Remove the case stopper screws (two each on right and left) as shown by the ⇐ mark on the front of the SC case and remove the pad.


Pad
SC case
Case stopper screw

④ Remove the +B3x6 claw screws (two each on right and left) of the SC case as shown by the ⇐ mark to remove the SC panel from the SC case, and put it toward you.
When removing, be careful not to damage the power switch knob.


Power switch knob
SC case
+B3x6
SC panel

⑤ Remove the +B3x6 claw screws (two each on right and left) located at the front of the AC case.

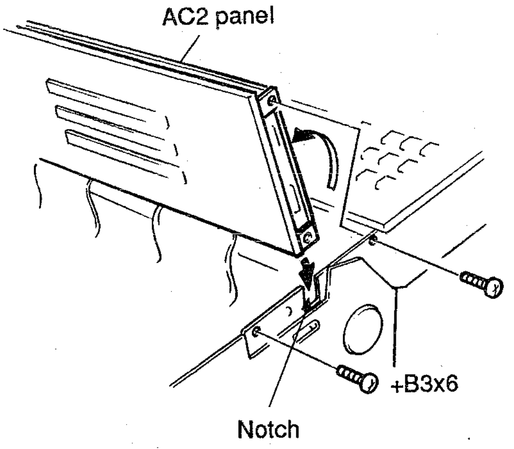
⑥ Remove the AC2 panel from the AC case.

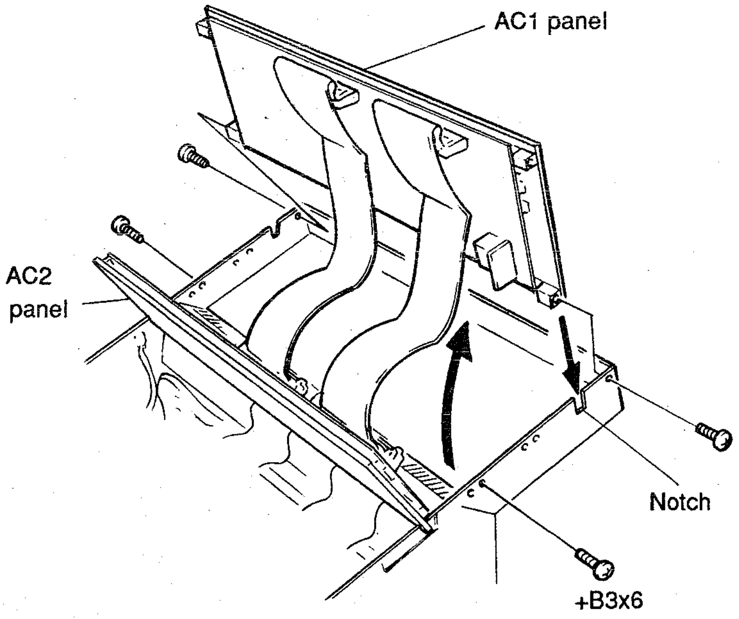
⑦ Insert the front edge of the AC2 panel into the notch covered by the grommet of the AC case to hold the AC2 panel.

⑧ Remove the +B3x6 claw screws (two each on right and left) located at the rear of the AC case.

⑨ Remove the AC1 panel from the AC case.

⑩ Insert the upper end portion of the AC1 panel into the notch covered by the grommet of the AC case to hold the AC1 panel.

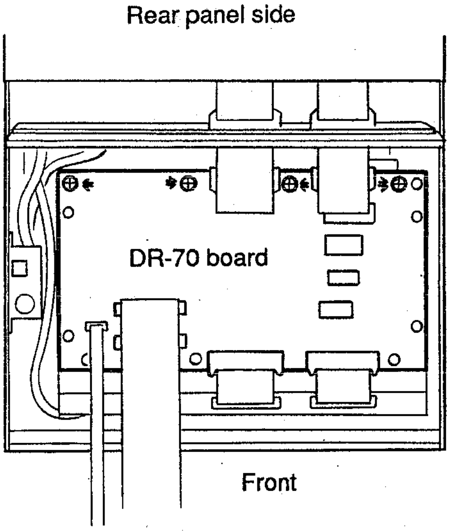

AC2 panel
+B3x6
Notch


AC1 panel
AC2
panel
Notch
+B3x6

3-7-2. Removal of the DR-70, SY-128/128A and RM-59 Boards

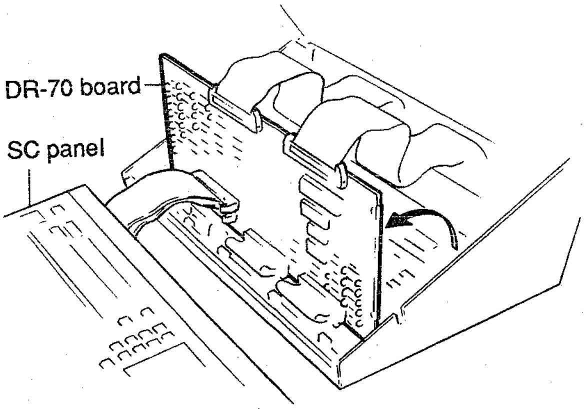
DR-70 Board

① Remove the four +PSW3x6 screws as shown by the ⇐ mark at the rear panel side of the DR-70 board.
(When removing, be careful not to damage the AC2 panel with the screwdriver.)



Rear panel side
DR-70 board
Front

② Set up the DR-70 board toward you (in the direction of the arrow mark).

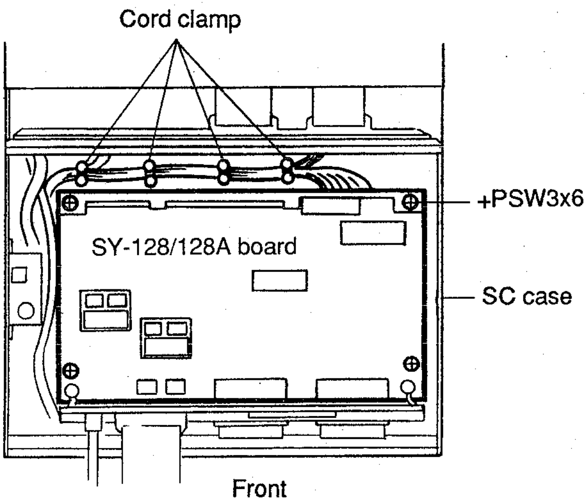


DR-70 board
SC panel

SY-128/128A Board

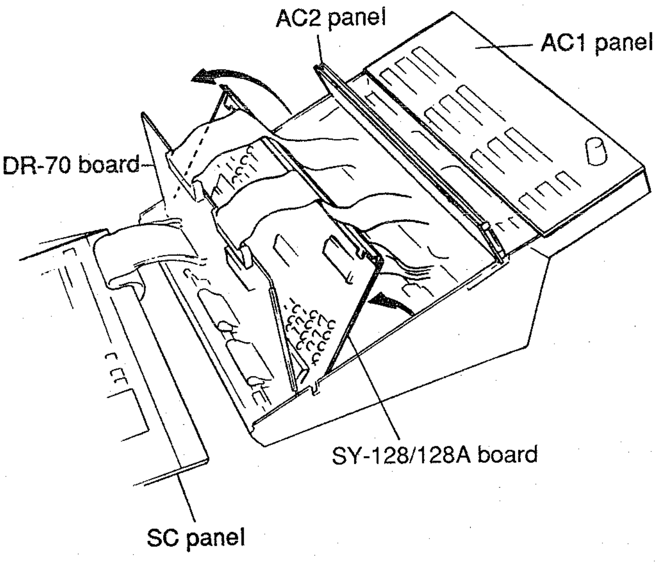
③ Remove the four +PSW3x6 screws securing the SY-128/128A board.

④ Unlock the four cord clamps securing the harness at the rear portion in the SC case.



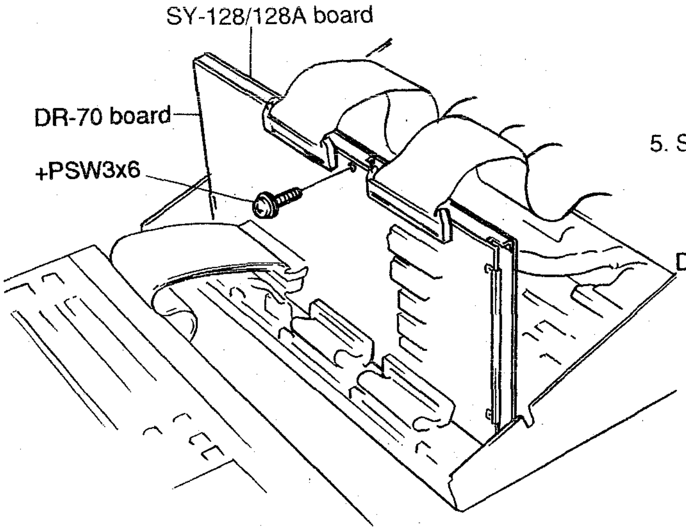
Cord clamp
+PSW3x6
SY-128/128A board
SC case
Front

⑤ While pulling out the harness from the cord clamps, set up the SY-128/128A board toward you (in the direction of the arrow mark.)

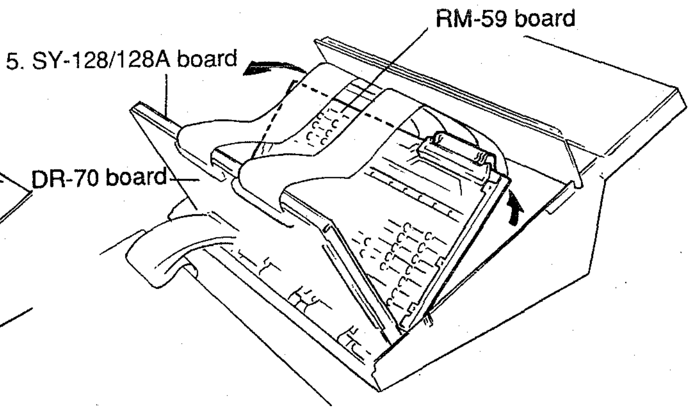


AC2 panel
AC1 panel
DR-70 board
SY-128/128A board
SC panel

⑥ Temporarily secure the DR-70 and SY-128/128A boards with one +PSW3X6 screw.


SY-128/128A board
DR-70 board
+PSW3x6

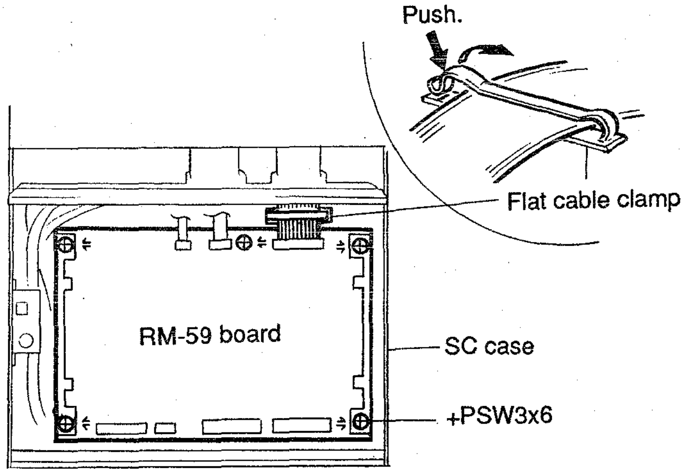
⑨ While pulling out the harness from the cord clamper, set up the RM-59 board toward you (in the direction of the arrow mark).


RM-59 board
5. SY-128/128A board
DR-70 board

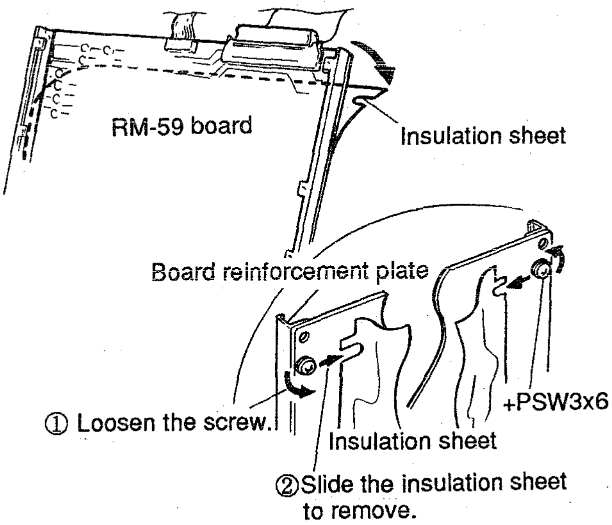
RM-59 Board

⑦ Unlock the flat cable clamp at the right rear portion in the SC case.

⑧ Remove the five +PSW3x6 screws as shown by the ⇐ mark on the RM-59 board.


Push.
Flat cable clamp
RM-59 board
SC case
+PSW3x6

⑩ Loosen the +PSW3x6 screw securing the board reinforcement plate from the rear face of the RM-59 board and remove the insulation sheet from the rear of the RM-59 board.


RM-59 board
Insulation sheet
Board reinforcement plate
① Loosen the screw.
+PSW3x6
Insulation sheet
②Slide the insulation sheet to remove.

3-7-3. Exchange of the AC1 panel and AC2 panel

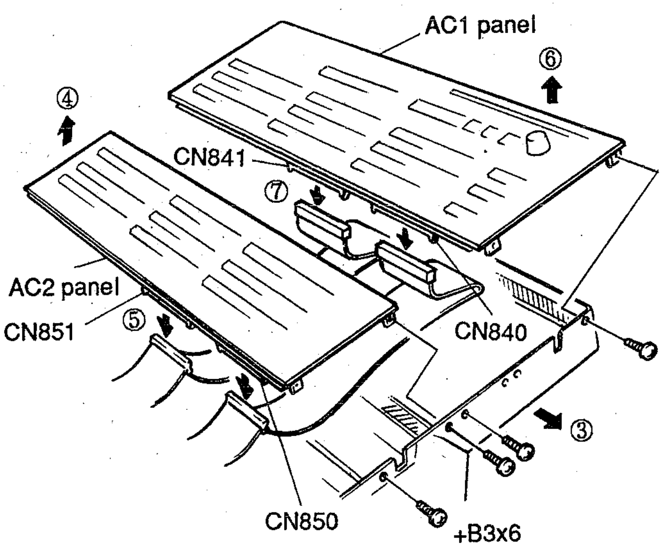
① Set the AC case to an angle as horizontal as possible (where SC and AC panels are on the same plane).

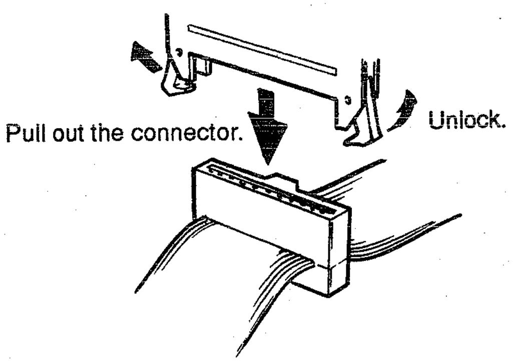
② Remove the SC and AC ornamental panels.

③ Remove the four +B3x6 claw screws from the right and left sides of the AC case, respectively.

④ Take out the AC2 panel from the AC case.

⑤ Disconnect the two flat cables from the ASW-9 board connectors (CN850, CN851) at the rear of the AC2 panel.


AC1 panel
⑥
④
CN841
⑦
AC2 panel
CN851
⑤
CN840
③
CN850
+B3x6

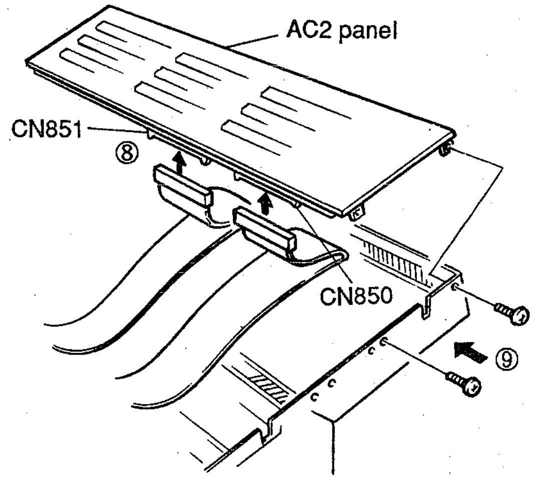

Pull out the connector.
Unlock.

⑥ Similarly, take out the AC1 panel from the AC case.

⑦ Remove the two flat cables from the ASW-8 board connectors (CN840, 841) at the rear of the AC1 panel.

⑧ Insert the two flat cables removed from the AC1 panel into the ASW-9 board connectors (CN850, 851) of the AC2 panel and lock them.

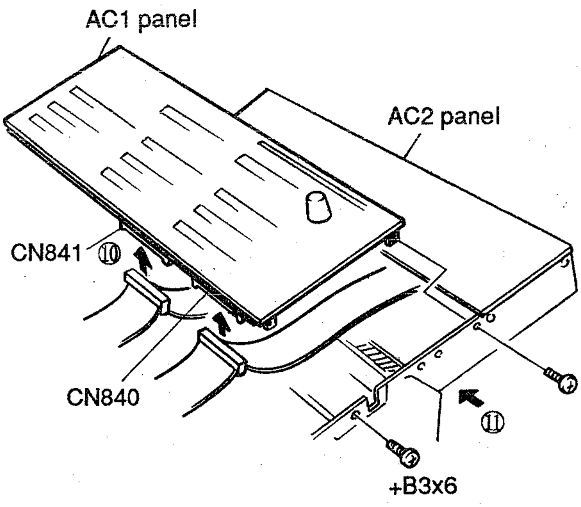
⑨ Put the AC2 panel in the AC case and secure it with four +B3x6 claw screws from right and left.


AC2 panel
CN851
⑧
CN850
⑨

⑩ Similarly, insert the two flat cables removed from the AC2 panel into the ASW-8 board connectors (CN840, 841) of the AC1 panel and lock them.

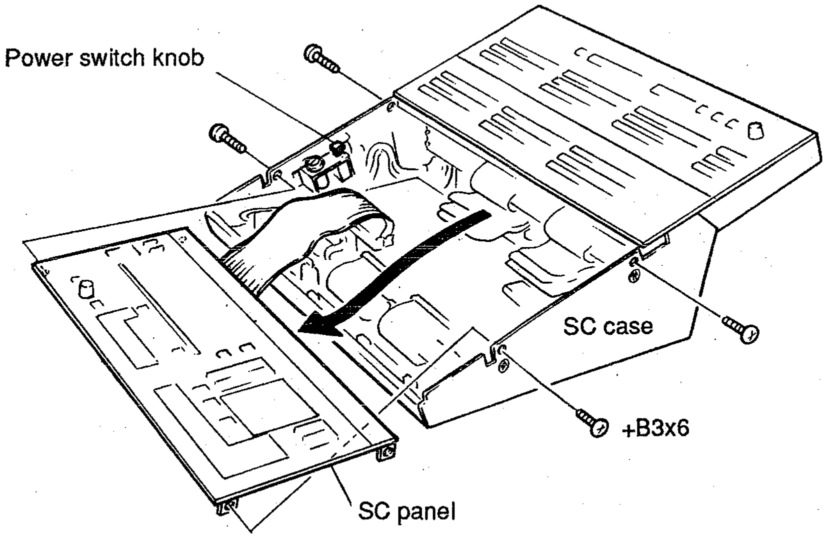
Secure the AC1 panel to the AC case with four +B3x6 claw screws.

Install the AC and SC ornamental panels.


AC1 panel
AC2 panel
CN841
⑩
CN840
⑪
+B3x6

3-7-4. Replacement of the fuse

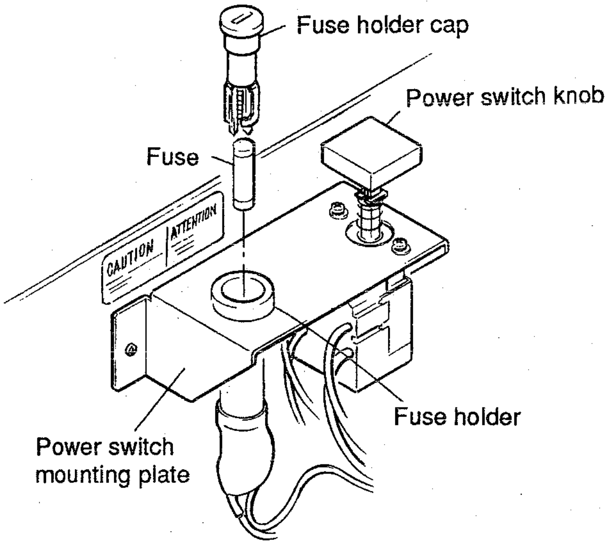
① According to "3-7-1 Removal of the Cover" on page 3-6 (Items 1 to 4), remove SC and AC ornamental panels, the pad and the SC panel.


Power switch knob
SC case
+B3x6
SC panel

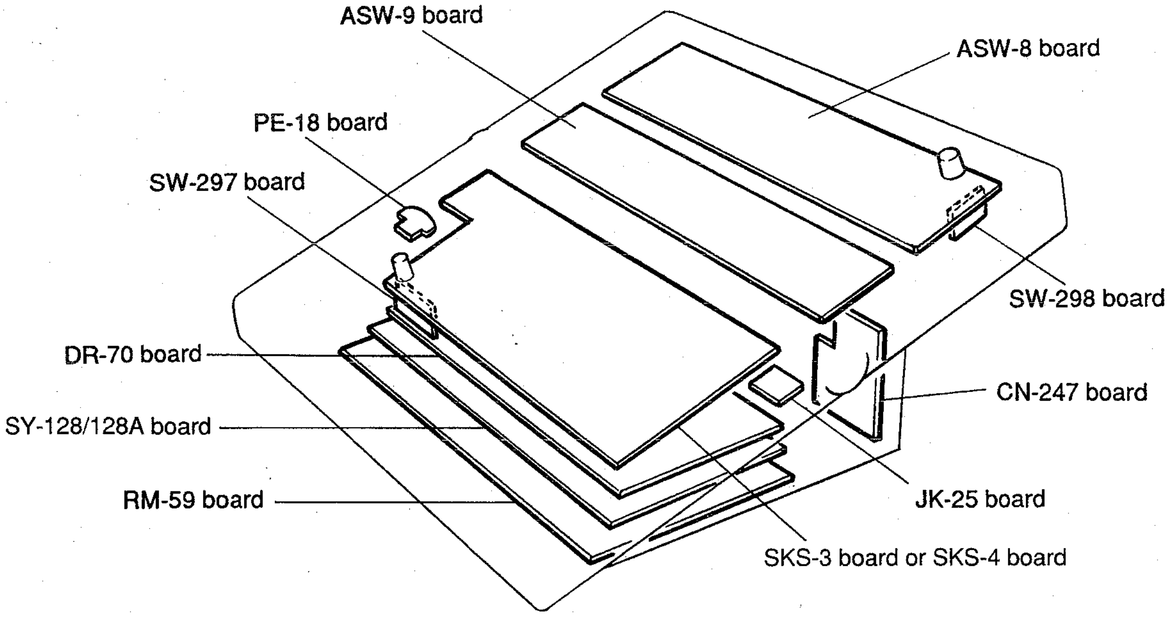
② Remove the fuse holder cap on the power switch mounting plate with a slotted screwdriver and pull out the fuse from the fuse holder cap.

③ Insert a replacement fuse into the fuse holder cap and secure it with the screwdriver.

④ Install the SC panel, the pad, and the AC and SC ornamental panels.


Fuse holder cap
Power switch knob
Fuse
CAUTION
ATTENTION
Fuse holder
Power switch mounting plate

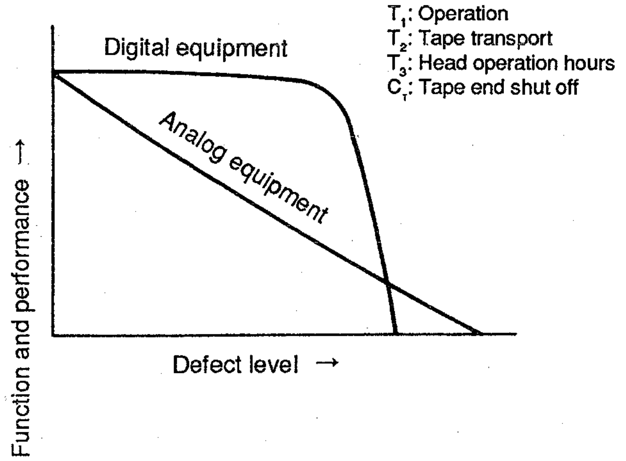
3-8. LOCATION OF BOARDS


ASW-9 board
ASW-8 board
PE-18 board
SW-297 board
SW-298 board
DR-70 board
CN-247 board
SY-128/128A board
RM-59 board
JK-25 board
SKS-3 board or SKS-4 board

SECTION 4
PERIODICAL CHECK AND MAINTENANCE

1. PURPOSE OF PERIODICAL CHECK

The periodical check described in this section shall be performed to prevent malfunctions caused by wear and fatigue of mechanical and rotation blocks resulting from operation time and frequency of the unit.
In case of systems including digital signal processing like PCM-3348, especially those systems protected by error-correcting codes, light defects are hard to detect (refer to the figure below).
Therefore, it is necessary to positively look for defects and repair them, and to prevent reoccurence by performing periodical checks.
The purpose of this periodical check and maintenance is satisfying the electrical and mechanical specifications mentioned in the operating instructions of PCM-3348.



2. DAILY MAINTENANCE

In order to maintain the performance of the unit, perform cleaning and head erasing every day.

1) Cleaning

Clean parts which contact the tape, such as each guide roller, guide pin, head, etc., with a head cleaning stick moistened with cleaning solution (ethyl alcohol)

- Stubborn contamination on the guide roller, the tension roller, the shifter roller, the capstan roller and the tape guides in the head block; after cleaning them with ethyl alcohol, carefully wipe them with a dry head cleaning stick.
- Each head; clean them by moving a head cleaning stick moistened by ethyl alcohol in the same direction as the tape transport. Then wipe them with a dry head cleaning stick.

(Note) When cleaning the rollers/guides, do not apply ethyl alcohol directly to the rollers/guides. Lightly moisten the cloth and head cleaning sticks with ethyl alcohol. Do not soak them in ethyl alcohol. Daily cleaning protects the rollers/guide against oxide that accumulates from the tape.

2) Head erasing

Place the erasing surface of the eraser as close to the head as possible and turn the power of the eraser on. Slowly remove the eraser from the head. When the eraser is sufficiently separated from the head, turn the power off. Perform erasing for each of the heads.

(Note) When erasing, be sure to turn off the power of PCM-3348. Also, be careful not to let the eraser directly contact the head.

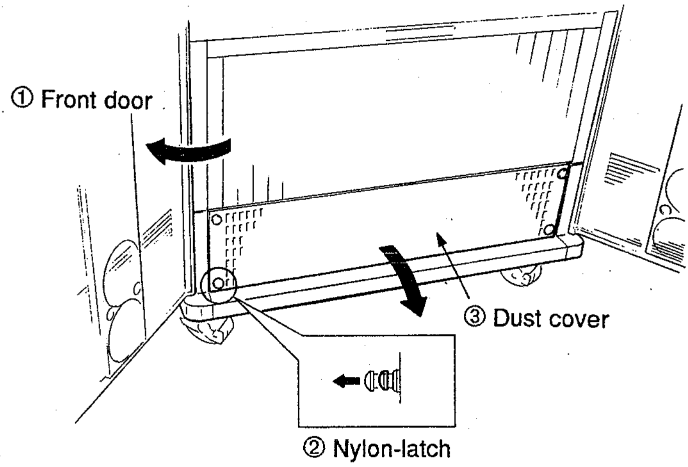
3) Procedure of periodical check and maintenance

To achieve the above mentioned results, replacement of worn parts, cleaning of other mechanical parts, check and adjustment of mechanical and electrical blocks shall be performed. Make the maintenance schedule based on the timer indication installed on the right side of the PCM-3348 power switch. Table 1 shows the guide of the items for maintenance and check in regard to the head operation timer indication, and parts to be replaced.
The time of replacement for each part is estimated on the basis of our experience. However, this may change subject to future records.

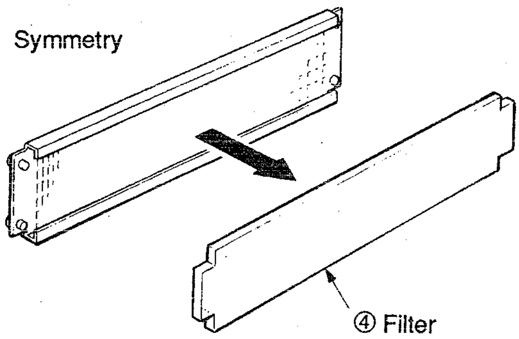
3. DUST COVER HANDLING

The dust cover prevents foreign matters entering PCM-3348 through the air duct. If the filter (refer to ④ of the following figure) of the dust cover is clogged, the cooling effect of the unit deteriorates. Clean the filter periodically.
Remove the filter as follows.

① Open the front door.
② Pull the four nylon-latches in the direction of the arrow.
③ Remove the dust cover in the direction of the arrow.



④ Remove the filter.



(Note) If the filter is washed with water, dry the filter before installing. If a wet filter is installed, trouble may result.

Table 1 Scheduling guide for periodical check and maintenance for PCM-3348

☆ : Parts to be replaced ◇ : Check and adjustment

Perform periodical check as follows.

1,000H is set as the first check time.

After the periodical check and maintenance at 18,000H are completed, proceed further periodical check and maintenance referring to the following table.

Timer mode
T_1 : Operation
T_2 : Tape transport
T_3 : Head operation hours
CT : Tape end shut off

Item	Quantity	1000H	4500H	6500H	9000H	11000H	13500H	15500H	18000H	Timer mode
Transport block										
1. Guide roller (2) section										T_3
1) Guide roller (2) assembly (A-7810-414-A)	1				☆				☆	
2) Bearing (4-888-483-01)	2	◇	☆		☆		☆		☆	
3) Rotation noise		◇	◇		◇		◇		◇	
4) Timer roller height		◇	◇		◇		◇		◇	
2. Guide roller (1) section										T_3
1) Guide rollor (1) assembly (A-7810-413-A)	2				☆				☆	
2) Bearing (4-888-483-01)	2 each	◇	☆		◇		☆		◇	
3) Abnormal rotation noise		◇	◇		◇		◇		◇	
4) Tape transport		◇	◇		◇		◇		◇	
3. Tension roller section										T_3
1) Supply tension regulator assembly (A-7810-407-A)	1				☆				☆	
2) Take-up tension regulator assembly (A-7810-408-A)	1				☆				☆	
3) Abnormal rotation noise		◇	◇		◇		◇		◇	
4) Bearing (4-888-483-01)	2 each	◇	☆		◇		☆		◇	
4. Shifter section										T_3
1) Shifter roller assembly (A-7810-412-A)	2				☆		☆		☆	
2) Shifter roller (4-927-284-01)	1 each		☆		☆		☆		☆	
3) Bearing (4-927-122-01)	2 each	◇	☆		◇		◇		◇	
4) Abnormal rotation noise		◇	◇		◇		◇		◇	

Item	Quantity	1000H	4500H	6500H	9000H	11000H	13500H	15500H	18000H	Timer mode	
5) Tape transport		◇	◇		◇		◇		◇	T_3	
Geared motor (1-541-198-00)	2				☆				☆		
Roller (2) assembly (X-4927-001-1)	4				☆				☆		
Ball bearing (without flange) (2-621-007-01)	1				☆				☆		
AC fan (1-541-578-11)	1				☆				☆	T_1	*
Axial fan	4				☆				☆		*
Digital timer (1-548-152-11)	Replace every 5 years										
5. Reel table section										T_3	
1) Supply reel motor assembly (A-7810-398-A)	1				☆				☆		
2) Take-up reel motor assembly (A-7810-401-A)	1				☆				☆		
3) Brake mechanism		◇	◇		◇		◇		◇		
4) Brake torque		◇	◇		◇		◇		◇		
5) Reel table height		◇	◇		◇		◇		◇		
6) Abnormal rotation noise		◇	◇		◇		◇		◇		
7) Brake solenoid	1 each		◇				◇				
8) Brake band assembly	1 each	Replace at 3000-count. CT								CT	
6. Capstan motor section										T_3	
1) Capstan motor assembly (A-7810-396-A)	1				☆				☆		
2) Abnormal rotation noise		◇	◇		◇		◇		◇		
7. HBU section										T_3	
1) REC head support assembly (AD-REC, SYNC REC head) (A-7810-392-A)	2		☆		☆		☆		☆		

Note: Intervals of parts replacement marked by * may differ according to operating condition of the unit.

Item	Quantity	1000H	4500H	6500H	9000H	11000H	13500H	15500H	18000H	Timer mode
2) PB head support assembly (Playback head) (A-7810-394-A)	1		☆		☆		☆		☆	T_3
3) Tape guide (4-927-183-01)	3				☆				☆	
4) Cleaner guide (4-927-277-01)	1		☆		☆		☆		☆	T_3
5) D/ADV REC head azimuth		◇	◇		◇		◇		◇	
6) D/SYNC REC head azimuth		◇	◇		◇		◇		◇	
7) D/PB head azimuth		◇	◇		◇		◇		◇	
8) D/ADV REC head contact		◇	◇		◇		◇		◇	T_3
9) D/SYNC REC head contact		◇	◇		◇		◇		◇	
10) D/PB REC head contact		◇	◇		◇		◇		◇	
11) Space between D/ADV REC and D/PB heads		◇	◇		◇		◇		◇	
12) Space between D/PB and D/SYNC REC heads		◇	◇		◇		◇		◇	
13) D/ADV REC head height		◇	◇		◇		◇		◇	
14) D/SYNC REC head height		◇	◇		◇		◇		◇	
15) D/PB head height		◇	◇		◇		◇		◇	

Item	Quantity	1000H	4500H	6500H	9000H	11000H	13500H	15500H	18000H	Timer mode
System control block										
1) FF/REW speed		◇	◇		◇		◇		◇	T_2
2) CTL lock position adjustment RV201, RV202		◇	◇		◇		◇		◇	T_1
3) Wow check		◇	◇		◇		◇		◇	
4) Supply/take-up tension arm detection level		◇	◇		◇		◇		◇	
5) High tension		◇	◇		◇		◇		◇	
6) Forward tension		◇	◇		◇		◇		◇	
7) Low and mid tension		◇	◇		◇		◇		◇	
8) Tension servo gain		◇	◇		◇		◇		◇	
9) Highest tape transport speed.		◇	◇		◇		◇		◇	T_1
10) Speed servo gain.		◇	◇		◇		◇		◇	T_1
11) Ext. speed	1		◇		◇		◇		◇	T_2
12) Ext. phase offset	1		◇		◇		◇		◇	
13) Power switch	1				☆				☆	T_1

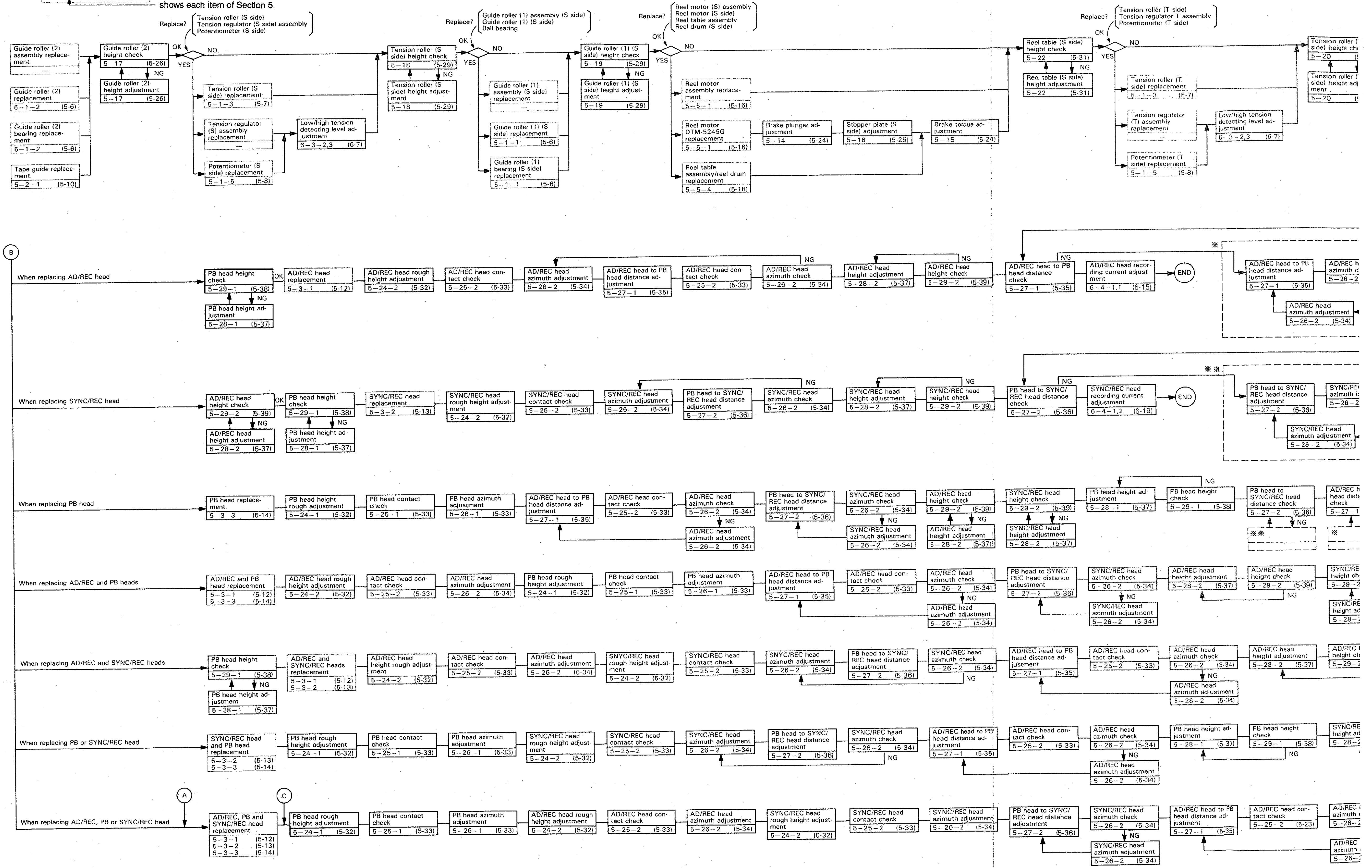
Item	Quantity	1000H	2500H	4500H	6500H	9000H	11500H	13500H	15500H	18000H	Timer mode
Electrical block											T_3
1. Electrical adjustment											
1) Power supply voltage check		◇		◇		◇		◇		◇	
2) ARP-1 PC board adjustment (analog block)				◇		◇		◇		◇	
3) Record current circuit (digital block, CTL, TC, A1, A2)		◇	◇	◇	◇	◇	◇	◇	◇	◇	
4) Playback equalizer adjustment		◇	◇	◇		◇		◇		◇	
5) TC PC board adjustment		◇		◇		◇		◇		◇	
6) A/D offset		◇		◇		◇		◇		◇	
2. Electrical characteristics											T_3
1) Noise ratio measurement		◇		◇		◇		◇		◇	
2) Frequency measurement		◇		◇		◇		◇		◇	
3) Distortion factor measurement		◇		◇		◇		◇		◇	
Function check											
1) Punch in/out		◇		◇		◇		◇		◇	
2) Function control		◇		◇		◇		◇		◇	
3) Shuttle function		◇		◇		◇		◇		◇	

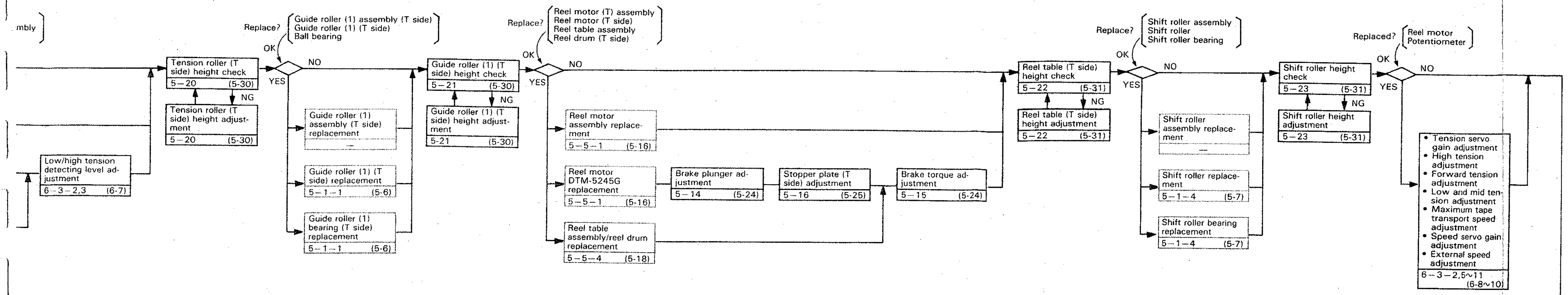
Flowchart of parts Replacement and Mechanical Adjustments

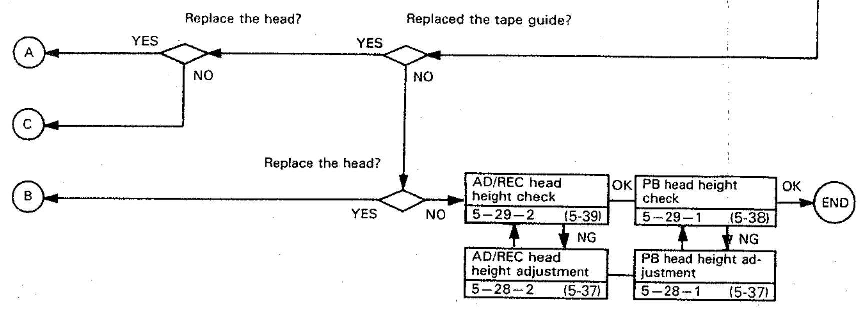
Note: ☐ indicates parts replacement.

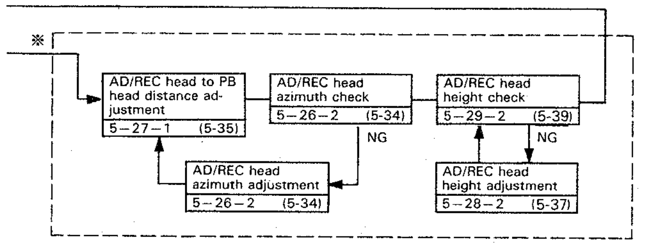
○–○–○ (○–○) ← shows the page of the text.

shows each item of Section 5.

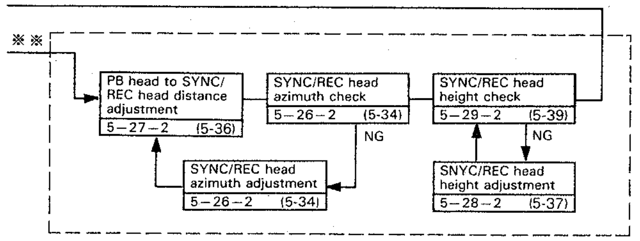

Replace?
Tension roller (S side)
Tension regulator (S side) assembly
Potentiometer (S side)
Guide roller (2) assembly replacement —
Guide roller (2) replacement 5–1–2 (5-6)
Guide roller (2) bearing replacement 5–1–2 (5-6)
Tape guide replacement 5–2–1 (5-10)
Guide roller (2) height check 5–17 (5-26)
OK
NG
YES
NO
Guide roller (2) height adjustment 5–17 (5-26)
Tension roller (S side) replacement 5–1–3 (5-7)
Tension regulator (S) assembly replacement —
Low/high tension detecting level adjustment 6–3–2,3 (6-7)
Potentiometer (S side) replacement 5–1–5 (5-8)
Tension roller (S side) height check 5–18 (5-29)
Tension roller (S side) height adjustment 5–18 (5-29)
Replace?
Guide roller (1) assembly (S side)
Guide roller (1) (S side)
Ball bearing
Guide roller (1) assembly (S side) replacement —
Guide roller (1) (S side) replacement 5–1–1 (5-6)
Guide roller (1) bearing (S side) replacement 5–1–1 (5-6)
Guide roller (1) (S side) height check 5–19 (5-29)
Guide roller (1) (S side) height adjustment 5–19 (5-29)
Replace?
Reel motor (S) assembly
Reel motor (S side)
Reel table assembly
Reel drum (S side)
Reel motor assembly replacement 5–5–1 (5-16)
Reel motor DTM-5245G replacement 5–5–1 (5-16)
Reel table assembly/reel drum replacement 5–5–4 (5-18)
Brake plunger adjustment 5–14 (5-24)
Stopper plate (S side) adjustment 5–16 (5-25)
Brake torque adjustment 5–15 (5-24)
Reel table (S side) height check 5–22 (5-31)
Reel table (S side) height adjustment 5–22 (5-31)
Replace?
Tension roller (T side)
Tension regulator T assembly
Potentiometer (T side)
Tension roller (T side) replacement 5–1–3 (5-7)
Tension regulator (T) assembly replacement —
Low/high tension detecting level adjustment 6–3–2,3 (6-7)
Potentiometer (T side) replacement 5–1–5 (5-8)
Tension roller (side) height ch 5–20 (5
Tension roller (side) height adj ment 5–20 (
B
When replacing AD/REC head
PB head height check 5–29–1 (5-38)
PB head height adjustment 5–28–1 (5-37)
AD/REC head replacement 5–3–1 (5-12)
AD/REC head rough height adjustment 5–24–2 (5-32)
AD/REC head contact check 5–25–2 (5-33)
AD/REC head azimuth adjustment 5–26–2 (5-34)
AD/REC head to PB head distance adjustment 5–27–1 (5-35)
AD/REC head contact check 5–25–2 (5-33)
AD/REC head azimuth check 5–26–2 (5-34)
AD/REC head height adjustment 5–28–2 (5-37)
AD/REC head height check 5–29–2 (5-39)
AD/REC head to PB head distance check 5–27–1 (5-35)
AD/REC head recording current adjustment 6–4–1,1 (6-15)
END
※
AD/REC head to PB head distance adjustment 5–27–1 (5-35)
AD/REC h azimuth c 5–26–2
AD/REC head azimuth adjustment 5–26–2 (5-34)
When replacing SYNC/REC head
AD/REC head height check 5–29–2 (5-39)
AD/REC head height adjustment 5–28–2 (5-37)
PB head height check 5–29–1 (5-38)
PB head height adjustment 5–28–1 (5-37)
SYNC/REC head replacement 5–3–2 (5-13)
SYNC/REC head rough height adjustment 5–24–2 (5-32)
SYNC/REC head contact check 5–25–2 (5-33)
SYNC/REC head azimuth adjustment 5–26–2 (5-34)
PB head to SYNC/REC head distance adjustment 5–27–2 (5-36)
SYNC/REC head azimuth check 5–26–2 (5-34)
SYNC/REC head height adjustment 5–28–2 (5-37)
SYNC/REC head height check 5–29–2 (5-39)
PB head to SYNC/REC head distance check 5–27–2 (5-36)
SYNC/REC head recording current adjustment 6–4–1,2 (6-19)
END
※※
PB head to SYNC/REC head distance adjustment 5–27–2 (5-36)
SYNC/REC azimuth 5–26–2
SYNC/REC head azimuth adjustment 5–26–2 (5-34)
When replacing PB head
PB head replacement 5–3–3 (5-14)
PB head height rough adjustment 5–24–1 (5-32)
PB head contact check 5–25–1 (5-33)
PB head azimuth adjustment 5–26–1 (5-33)
AD/REC head to PB head distance adjustment 5–27–1 (5-35)
AD/REC head contact check 5–25–2 (5-33)
AD/REC head azimuth check 5–26–2 (5-34)
AD/REC head azimuth adjustment 5–26–2 (5-34)
PB head to SYNC/REC head distance adjustment 5–27–2 (5-36)
SYNC/REC head azimuth check 5–26–2 (5-34)
SYNC/REC head azimuth adjustment 5–26–2 (5-34)
AD/REC head height check 5–29–2 (5-39)
AD/REC head height adjustment 5–28–2 (5-37)
SYNC/REC head height check 5–29–2 (5-39)
SYNC/REC head height adjustment 5–28–2 (5-37)
PB head height adjustment 5–28–1 (5-37)
PB head height check 5–29–1 (5-38)
PB head to SYNC/REC head distance check 5–27–2 (5-36)
※※
AD/REC h head dista check 5–27–1
※
When replacing AD/REC and PB heads
AD/REC and PB head replacement 5–3–1 (5-12) 5–3–3 (5-14)
AD/REC head rough height adjustment 5–24–2 (5-32)
AD/REC head contact check 5–25–2 (5-33)
AD/REC head azimuth adjustment 5–26–2 (5-34)
PB head rough height adjustment 5–24–1 (5-32)
PB head contact check 5–25–1 (5-33)
PB head azimuth adjustment 5–26–1 (5-33)
AD/REC head to PB head distance adjustment 5–27–1 (5-35)
AD/REC head contact check 5–25–2 (5-33)
AD/REC head azimuth check 5–26–2 (5-34)
AD/REC head azimuth adjustment 5–26–2 (5-34)
PB head to SYNC/REC head distance adjustment 5–27–2 (5-36)
SYNC/REC head azimuth check 5–26–2 (5-34)
SYNC/REC head azimuth adjustment 5–26–2 (5-34)
AD/REC head height adjustment 5–28–2 (5-37)
AD/REC head height check 5–29–2 (5-39)
SYNC/RE height ch 5–29–2
SYNC/RE height ac 5–28–
When replacing AD/REC and SYNC/REC heads
PB head height check 5–29–1 (5-38)
PB head height adjustment 5–28–1 (5-37)
AD/REC and SYNC/REC heads replacement 5–3–1 (5-12) 5–3–2 (5-13)
AD/REC head height rough adjustment 5–24–2 (5-32)
AD/REC head contact check 5–25–2 (5-33)
AD/REC head azimuth adjustment 5–26–2 (5-34)
SNYC/REC head rough height adjustment 5–24–2 (5-32)
SYNC/REC head contact check 5–25–2 (5-33)
SNYC/REC head azimuth adjustment 5–26–2 (5-34)
PB head to SYNC/REC head distance adjustment 5–27–2 (5-36)
SYNC/REC head azimuth check 5–26–2 (5-34)
AD/REC head to PB head distance adjustment 5–27–1 (5-35)
AD/REC head contact check 5–25–2 (5-33)
AD/REC head azimuth check 5–26–2 (5-34)
AD/REC head azimuth adjustment 5–26–2 (5-34)
AD/REC head height adjustment 5–28–2 (5-37)
AD/REC h height ch 5–29–
When replacing PB or SYNC/REC head
SYNC/REC head and PB head replacement 5–3–2 (5-13) 5–3–3 (5-14)
PB head rough height adjustment 5–24–1 (5-32)
PB head contact check 5–25–1 (5-33)
PB head azimuth adjustment 5–26–1 (5-33)
SYNC/REC head rough height adjustment 5–24–2 (5-32)
SYNC/REC head contact check 5–25–2 (5-33)
SYNC/REC head azimuth adjustment 5–26–2 (5-34)
PB head to SYNC/REC head distance adjustment 5–27–2 (5-36)
SYNC/REC head azimuth check 5–26–2 (5-34)
AD/REC head to PB head distance adjustment 5–27–1 (5-35)
AD/REC head contact check 5–25–2 (5-33)
AD/REC head azimuth check 5–26–2 (5-34)
AD/REC head azimuth adjustment 5–26–2 (5-34)
PB head height adjustment 5–28–1 (5-37)
PB head height check 5–29–1 (5-38)
SYNC/RE height ad 5–28–
A
C
When replacing AD/REC, PB or SYNC/REC head
AD/REC, PB and SYNC/REC head replacement 5–3–1 (5-12) 5–3–2 (5-13) 5–3–3 (5-14)
PB head rough height adjustment 5–24–1 (5-32)
PB head contact check 5–25–1 (5-33)
PB head azimuth adjustment 5–26–1 (5-33)
AD/REC head rough height adjustment 5–24–2 (5-32)
AD/REC head contact check 5–25–2 (5-33)
AD/REC head azimuth adjustment 5–26–2 (5-34)
SYNC/REC head rough height adjustment 5–24–2 (5-32)
SYNC/REC head contact check 5–25–2 (5-33)
SYNC/REC head azimuth adjustment 5–26–2 (5-34)
PB head to SYNC/REC head distance adjustment 5–27–2 (5-36)
SYNC/REC head azimuth check 5–26–2 (5-34)
SYNC/REC head azimuth adjustment 5–26–2 (5-34)
AD/REC head to PB head distance adjustment 5–27–1 (5-35)
AD/REC head contact check 5–25–2 (5-23)
AD/REC azimuth 5–26–
AD/REC azimuth 5–26–


mbly
Replace?
Guide roller (1) assembly (T side)
Guide roller (1) (T side)
Ball bearing
OK
NO
YES
Tension roller (T side) height check 5–20 (5-30)
NG
Tension roller (T side) height adjustment 5–20 (5-30)
Low/high tension detecting level adjustment 6–3–2,3 (6-7)
Guide roller (1) assembly (T side) replacement —
Guide roller (1) (T side) replacement 5–1–1 (5-6)
Guide roller (1) bearing (T side) replacement 5–1–1 (5-6)
Guide roller (1) (T side) height check 5–21 (5-30)
NG
Guide roller (1) (T side) height adjustment 5–21 (5-30)
Replace?
Reel motor (T) assembly
Reel motor (T side)
Reel table assembly
Reel drum (T side)
OK
NO
YES
Reel motor assembly replacement 5–5–1 (5-16)
Reel motor DTM-5245G replacement 5–5–1 (5-16)
Brake plunger adjustment 5–14 (5-24)
Stopper plate (T side) adjustment 5–16 (5-25)
Brake torque adjustment 5–15 (5-24)
Reel table assembly/reel drum replacement 5–5–4 (5-18)
Reel table (T side) height check 5–22 (5-31)
NG
Reel table (T side) height adjustment 5–22 (5-31)
Replace?
Shift roller assembly
Shift roller
Shift roller bearing
OK
NO
YES
Shift roller assembly replacement —
Shift roller replacement 5–1–4 (5-7)
Shift roller bearing replacement 5–1–4 (5-7)
Shift roller height check 5–23 (5-31)
NG
Shift roller height adjustment 5–23 (5-31)
Replaced?
Reel motor
Potentiometer
OK
NO
YES
• Tension servo gain adjustment
• High tension adjustment
• Forward tension adjustment
• Low and mid tension adjustment
• Maximum tape transport speed adjustment
• Speed servo gain adjustment
• External speed adjustment
6–3–2,5~11 (6-8~10)


Replace the head?
Replaced the tape guide?
YES
YES
NO
NO
A
C
B
Replace the head?
YES
NO
AD/REC head height check 5–29–2 (5-39)
OK
PB head height check 5–29–1 (5-38)
OK
END
NG
NG
AD/REC head height adjustment 5–28–2 (5-37)
PB head height adjustment 5–28–1 (5-37)


※
AD/REC head to PB head distance adjustment 5–27–1 (5-35)
AD/REC head azimuth check 5–26–2 (5-34)
NG
AD/REC head azimuth adjustment 5–26–2 (5-34)
AD/REC head height check 5–29–2 (5-39)
NG
AD/REC head height adjustment 5–28–2 (5-37)

Note:
Detail flowchart marked with ※ (or ※※) and circled with dotted line applies to the following blank frame marked with ※ (or ※※).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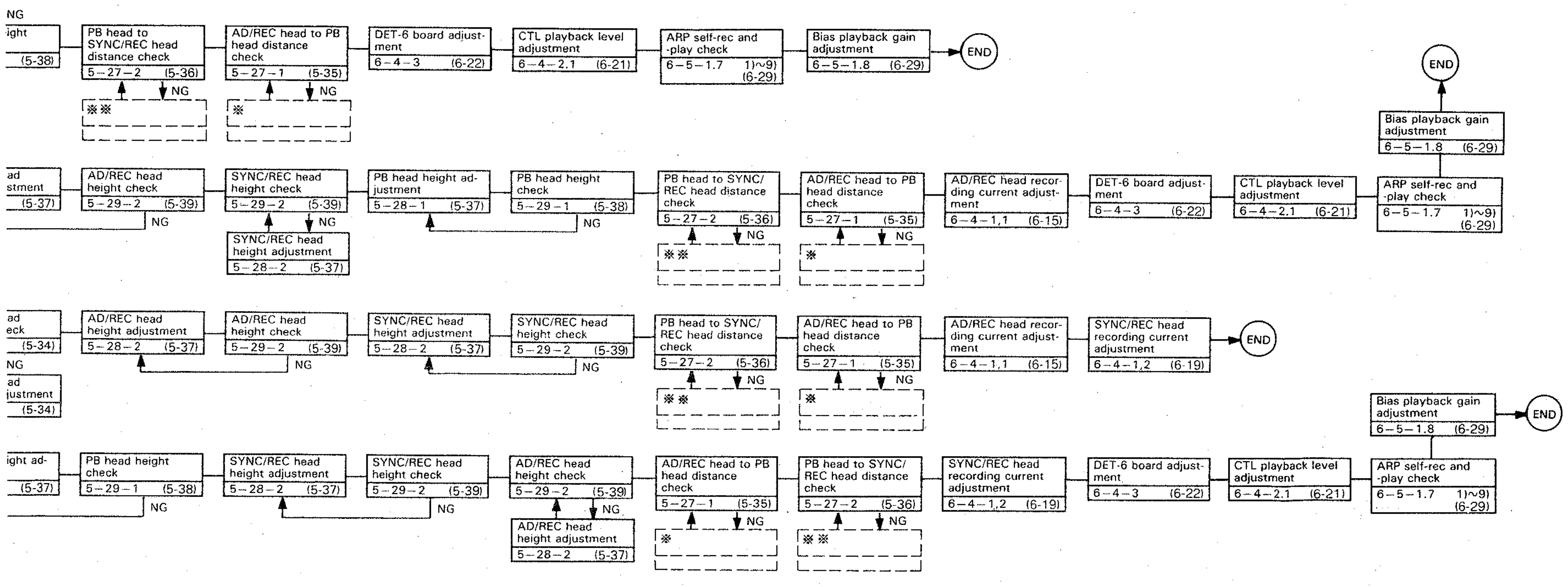
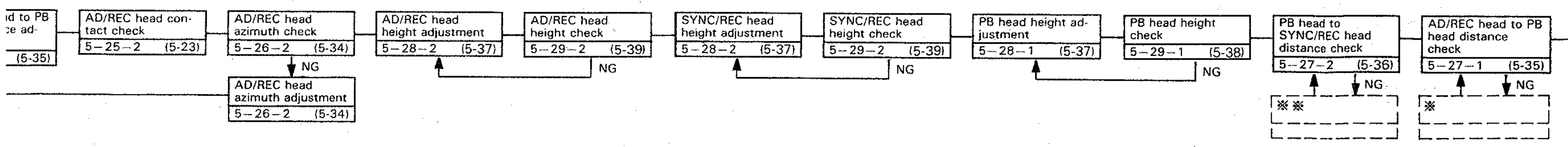
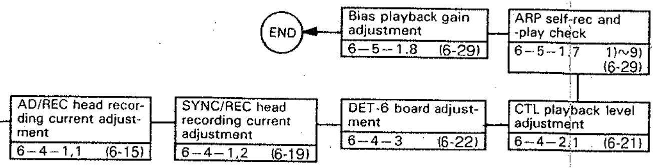
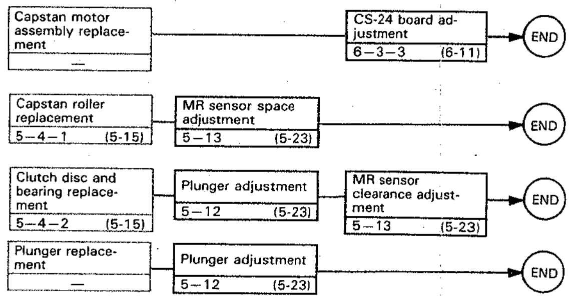
PB head to SYNC/REC head distance adjustment 5–27–2 (5-36)
SYNC/REC head azimuth check 5–26–2 (5-34)
NG
SYNC/REC head azimuth adjustment 5–26–2 (5-34)
SYNC/REC head height check 5–29–2 (5-39)
NG
SNYC/REC head height adjustment 5–28–2 (5-37)


NG
ight
(5-38)
PB head to SYNC/REC head distance check 5–27–2 (5-36)
NG
※※
AD/REC head to PB head distance check 5–27–1 (5-35)
NG
※
DET-6 board adjustment 6–4–3 (6-22)
CTL playback level adjustment 6–4–2.1 (6-21)
ARP self-rec and -play check 6–5–1.7 1)~9) (6-29)
Bias playback gain adjustment 6–5–1.8 (6-29)
END
END
Bias playback gain adjustment 6–5–1.8 (6-29)
ad
stment
(5-37)
AD/REC head height check 5–29–2 (5-39)
NG
SYNC/REC head height check 5–29–2 (5-39)
NG
SYNC/REC head height adjustment 5–28–2 (5-37)
PB head height adjustment 5–28–1 (5-37)
PB head height check 5–29–1 (5-38)
NG
PB head to SYNC/REC head distance check 5–27–2 (5-36)
NG
※※
AD/REC head to PB head distance check 5–27–1 (5-35)
NG
※
AD/REC head recording current adjustment 6–4–1,1 (6-15)
DET-6 board adjustment 6–4–3 (6-22)
CTL playback level adjustment 6–4–2.1 (6-21)
ARP self-rec and -play check 6–5–1.7 1)~9) (6-29)
ad
eck
(5-34)
NG
ad
justment
(5-34)
AD/REC head height adjustment 5–28–2 (5-37)
AD/REC head height check 5–29–2 (5-39)
NG
SYNC/REC head height adjustment 5–28–2 (5-37)
SYNC/REC head height check 5–29–2 (5-39)
NG
PB head to SYNC/REC head distance check 5–27–2 (5-36)
NG
※※
AD/REC head to PB head distance check 5–27–1 (5-35)
NG
※
AD/REC head recording current adjustment 6–4–1,1 (6-15)
SYNC/REC head recording current adjustment 6–4–1,2 (6-19)
END
Bias playback gain adjustment 6–5–1.8 (6-29)
END
ight ad-
(5-37)
PB head height check 5–29–1 (5-38)
NG
SYNC/REC head height adjustment 5–28–2 (5-37)
SYNC/REC head height check 5–29–2 (5-39)
NG
AD/REC head height check 5–29–2 (5-39)
NG
AD/REC head height adjustment 5–28–2 (5-37)
AD/REC head to PB head distance check 5–27–1 (5-35)
NG
※
PB head to SYNC/REC head distance check 5–27–2 (5-36)
NG
※※
SYNC/REC head recording current adjustment 6–4–1,2 (6-19)
DET-6 board adjustment 6–4–3 (6-22)
CTL playback level adjustment 6–4–2.1 (6-21)
ARP self-rec and -play check 6–5–1.7 1)~9) (6-29)

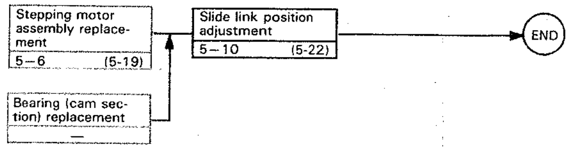

d to PB
e ad-
(5-35)
AD/REC head contact check 5–25–2 (5-23)
AD/REC head azimuth check 5–26–2 (5-34)
NG
AD/REC head azimuth adjustment 5–26–2 (5-34)
AD/REC head height adjustment 5–28–2 (5-37)
AD/REC head height check 5–29–2 (5-39)
NG
SYNC/REC head height adjustment 5–28–2 (5-37)
SYNC/REC head height check 5–29–2 (5-39)
NG
PB head height adjustment 5–28–1 (5-37)
PB head height check 5–29–1 (5-38)
NG
PB head to SYNC/REC head distance check 5–27–2 (5-36)
NG
※※
AD/REC head to PB head distance check 5–27–1 (5-35)
NG
※


END
Bias playback gain adjustment 6–5–1.8 (6-29)
ARP self-rec and -play check 6–5–1.7 1)~9) (6-29)
AD/REC head recording current adjustment 6–4–1,1 (6-15)
SYNC/REC head recording current adjustment 6–4–1,2 (6-19)
DET-6 board adjustment 6–4–3 (6-22)
CTL playback level adjustment 6–4–2.1 (6-21)

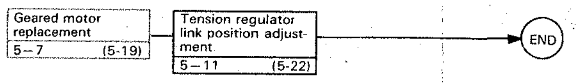
CAPSTAN MOTOR ASSEMBLY


Capstan motor assembly replacement —
CS-24 board adjustment 6–3–3 (6-11)
END
Capstan roller replacement 5–4–1 (5-15)
MR sensor space adjustment 5–13 (5-23)
END
Clutch disc and bearing replacement 5–4–2 (5-15)
Plunger adjustment 5–12 (5-23)
MR sensor clearance adjustment 5–13 (5-23)
END
Plunger replacement —
Plunger adjustment 5–12 (5-23)
END

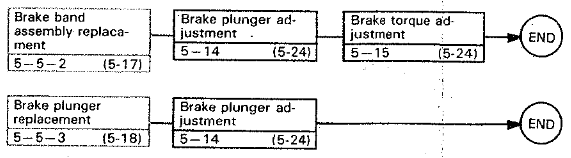
STEPPING MOTOR SUB ASSEMBLY REPLACEMENT


Stepping motor assembly replacement 5–6 (5-19)
Slide link position adjustment 5–10 (5-22)
END
Bearing (cam section) replacement —

GEARED MOTOR REPLACEMENT


Geared motor replacement 5–7 (5-19)
Tension regulator link position adjustment 5–11 (5-22)
END

BRAKE BAND ASSEMBLY AND BRAKE PLUNGER REPLACEMENT


Brake band assembly replacement 5–5–2 (5-17)
Brake plunger adjustment 5–14 (5-24)
Brake torque adjustment 5–15 (5-24)
END
Brake plunger replacement 5–5–3 (5-18)
Brake plunger adjustment 5–14 (5-24)
END

SECTION 5
MECHANICAL ADJUSTMENT

This section describes mechanical adjustments of PCM-3348 and parts replacement.
''Flowchart of Parts Replacement and Mechanical Adjustments'' on the left page explains each procedure mentioned in Section 5 from ''5-1. Replacement of Roller System'' to ''5-13. MR Sensor Clearance Adjustment''.

Effective use of the flowchart
First, spread out the flowchart, and trace the desired caption along the adjustment flow to search the relative text among the items of the caption.
When confirming the location in the whole flowchart by the text of a certain item, it is convenient to see the flowchart conversely from the text.
The flowchart is specially made of vinyl for frequent use.
However, do not use it near heat (more than 60°C), as it has a low degree of heat tolerance.

5-1. REPLACEMENT OF THE ROLLER BLOCK

5-1-1. Guide roller (1) replacement (applicable to both S side and T side)

(Refer to the following figure.)

1) Turn the cap counterclockwise by hand to remove it.
2) Pull out the KL clip to remove the compression coil spring, the GR collar, the ball bearing and the roller.
3) Apply grease to the inner and outer rings of the bearing after replacement of the roller and the bearing, and assemble in the reverse order of 1) and 2) above.

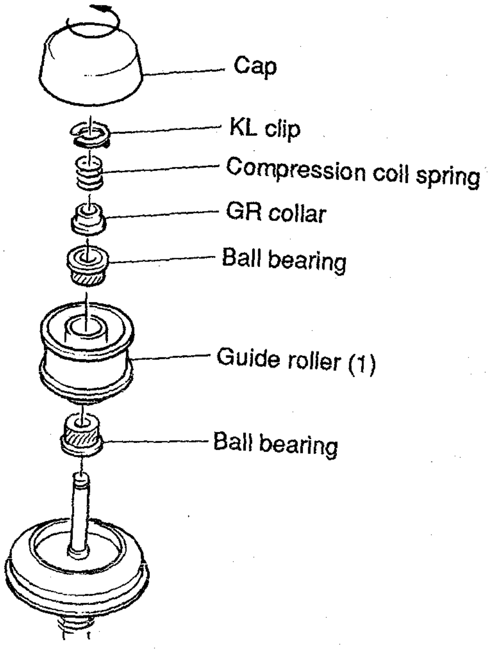
* Mount the KL clip as illustrated in the direction shown in Figure.

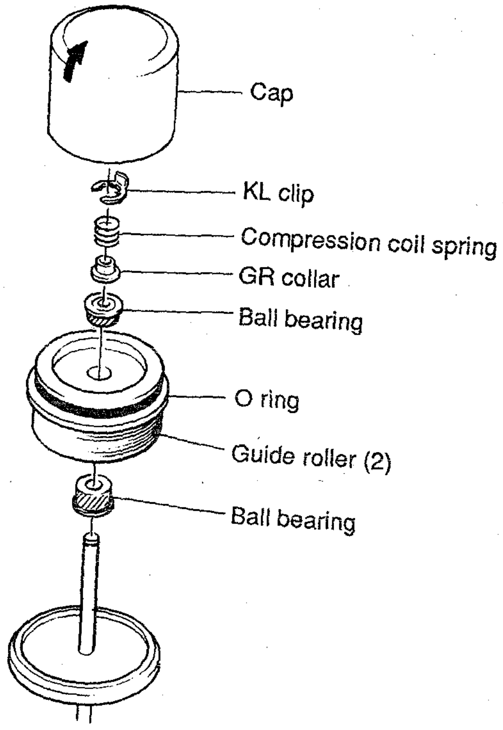
5-1-2. Guide roller (2) replacement

(Refer to the following figure.)

1) Remove the cap by hand.
2) Pull out the KL clip to remove the compression coil spring, the GR collar, the ball bearing, and the guide roller (2).
3) When replacing the roller, insert the O ring into the groove of the guide roller (2) so that it will not be warped.
4) After replacement of the ball bearing and the guide roller (2), apply grease to the inner and outer rings, of the ball bearing and assemble in the reverse order of 1) and 2) above.

* Replace the O ring when replacing the roller.


Cap
KL clip
Compression coil spring
GR collar
Ball bearing
Guide roller (1)
Ball bearing

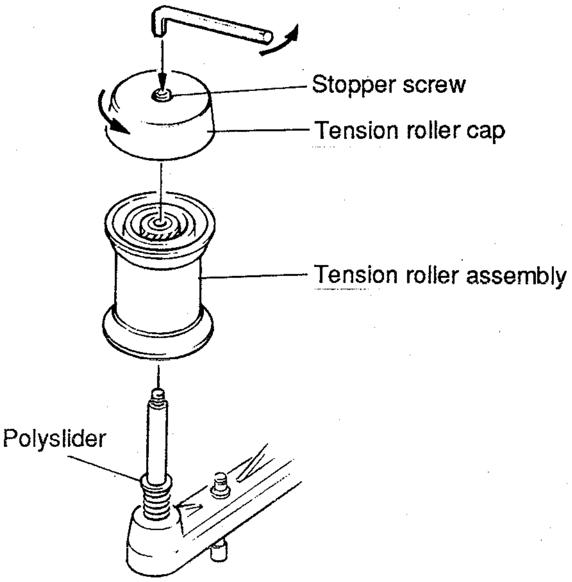

Cap
KL clip
Compression coil spring
GR collar
Ball bearing
O ring
Guide roller (2)
Ball bearing

5-1-3. Tension roller replacement (applicable to both S side and T side)

(Refer to the following figure.)

1) Slightly loosen the stopper screw of the tension roller cap.
2) Turn the tension roller cap by hand to remove it, and take out the tension roller assembly.
3) When replacing the tension roller assembly, apply grease to the bearing inner ring and assemble in the reverse order of 1) and 2) above.

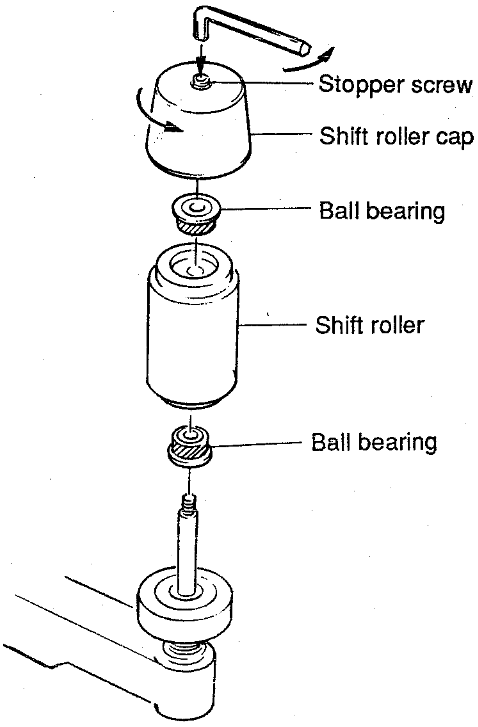
✻ The bearing is attached to the roller to make an assembly.
Be careful not to take out the polyslider together with the roller.


Stopper screw
Tension roller cap
Tension roller assembly
Polyslider

5-1-4. Shift roller replacement (applicable to both S side and T side)

(Refer to the following figure.)

1) Slightly loosen the stopper screw of the shift roller cap.
2) Turn the shift roller cap by hand to remove it, and take out the ball bearing and the shift roller.
3) When replacing the shift roller and the ball bearing, apply grease to the inner and outer rings of the ball bearing, and assemble in the reverse of 1) and 2) above.


Stopper screw
Shift roller cap
Ball bearing
Shift roller
Ball bearing

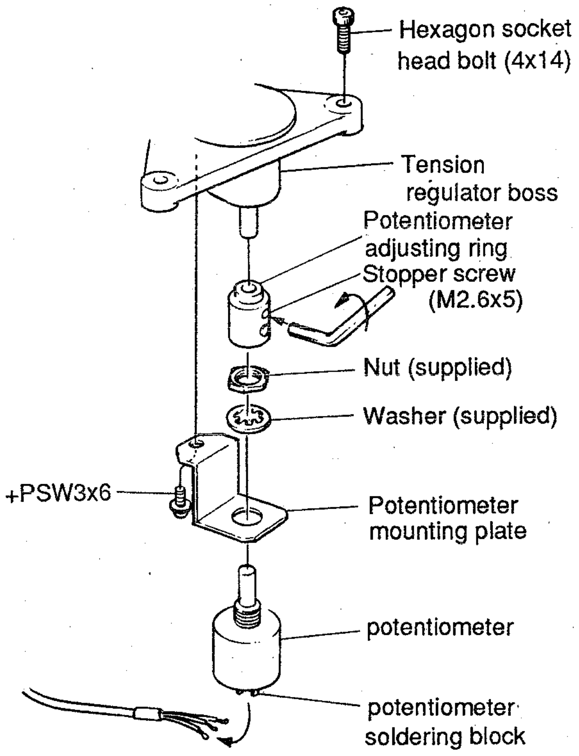
5-1-5. Potentiometer replacement
(Refer to the following figure.)

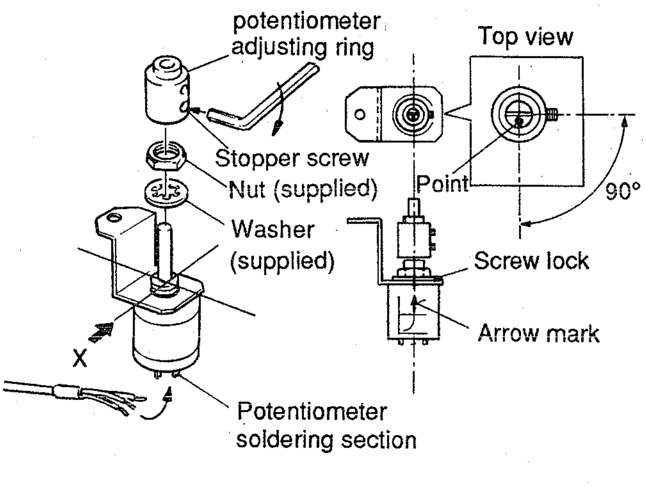
Measuring instrument
Oscilloscope
Potentional device

1) Remove the tension regulator link (2) and the tension coil spring from the pin of the geared motor assembly.
2) Take out the hexagon socket head bolt (4x14) to remove the tension regulator assembly.
3) Remove the harness soldering section of the potentiometer.
4) Loosen the stopper screw on the upper side of the potentiometer adjusting ring. In this condition, be careful not to disconnect the tension arm, the tension regulator boss and the bearing therein.
5) Unfasten the +PSW3x6 screw to remove the potentiometer together with the potentiometer mounting board and potentiometer adjusting ring.
6) Loosen the stopper screw on the lower side of the potentiometer adjusting ring to remove.
7) Remove the nut to take out the potentiometer.
8) Wipe off the screw lock of the potentiometer mounting plate.
9) Solder the replaced potentiometer to the harness. (Hook wiring)

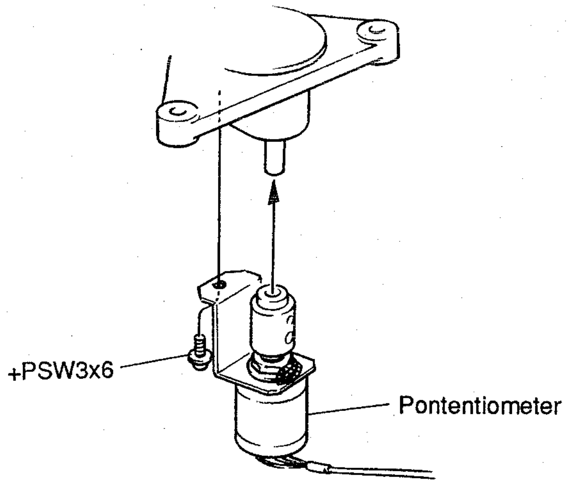
* S side 1 - Red
2 - White
3- Yellow
T side 1 - Yellow
2 - White
3 - Red

10) Fasten the potentiometer with the washer and nut so that the arrow mark on the potentiometer is at the front when viewed from the X direction.
11) Apply screw lock to the screw section.
12) Insert the potentiometer adjusting ring deeply, and fasten the stopper screw (M2.6x5) on the lower side of the adjusting ring so that the stopper screw is positioned at 90° right of the point of top of the potentiometer shaft as shown in the figure.


Hexagon socket head bolt (4x14)
Tension regulator boss
Potentiometer adjusting ring
Stopper screw (M2.6x5)
Nut (supplied)
Washer (supplied)
+PSW3x6
Potentiometer mounting plate
potentiometer
potentiometer soldering block


potentiometer adjusting ring
Top view
Stopper screw
Nut (supplied)
Point
90°
Washer (supplied)
Screw lock
X
Arrow mark
Potentiometer soldering section

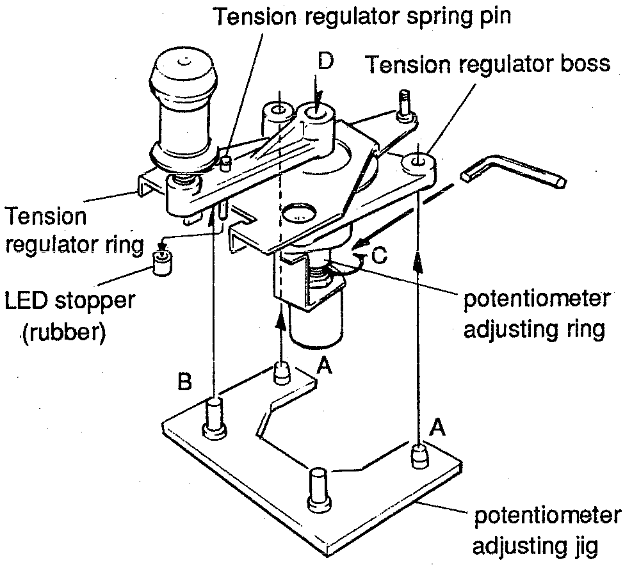
13) Insert the potentiometer into the tension arm shaft and fasten the +PSW3x6 screw.


+PSW3x6
Pontentiometer

14) Remove the LED stopper and set the tension regulator assembly on the potentiometer adjusting jig. Insert the A sahft into the hole of the tension regulator boss and put the B shaft between the tension regulator spring pin and the tension regulator link.
(Refer to the figure on the right.)
* The figure shows the T side. (The S side faces the reverse direction.)

15) Turn the power switch on.
T side : Set so that the TP5 output on the PTN board becomes 0V±50mV.
S side : Set so that the TP6 output on the PTN board becomes 0V±50mV.
Turn the potentiometer adjusting ring in the C direction, depressing the tension arm in the D direction, and fasten the stopper screw on the upper side of the adjusting ring.
(Refer to the figure on the right.)

16) Remove the tension regulator assembly from the potentiometer adjusting jig to insert the LED stopper.
17) Mount the tension regulator assembly on the mechanical chassis with the hexagon socket head bolt.
18) Hook the tension regulator link (2) and the tension coil spring onto the spring hooking pin of the tension regulator assembly.


Tension regulator spring pin
D
Tension regulator boss
Tension regulator ring
LED stopper (rubber)
C
potentiometer adjusting ring
B
A
A
potentiometer adjusting jig

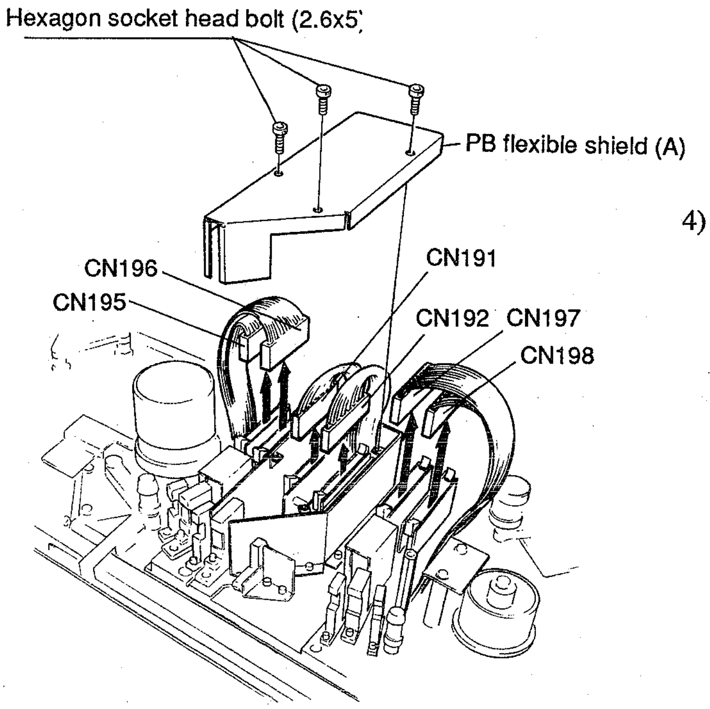
5-2. TAPE GUIDE REPLACEMENT

5-2-1. Tape guide replacement

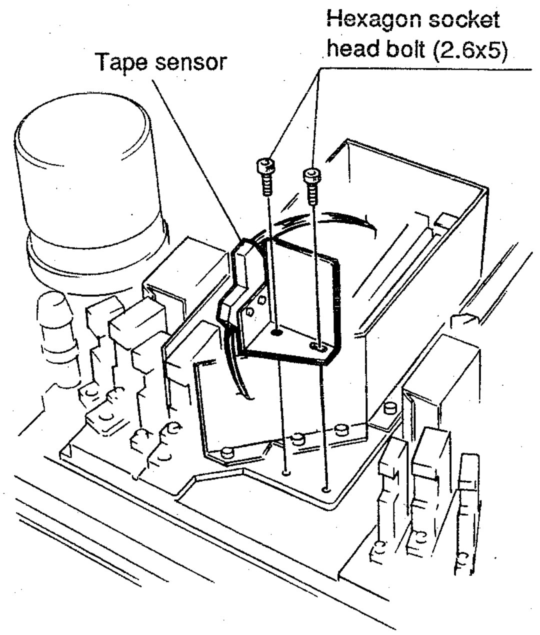
Measuring instrument
Table guide adj. table
Lower flange height adj. tool
Lower flange height reference block

1. Removal of parts
   (Refer to the following figure.)

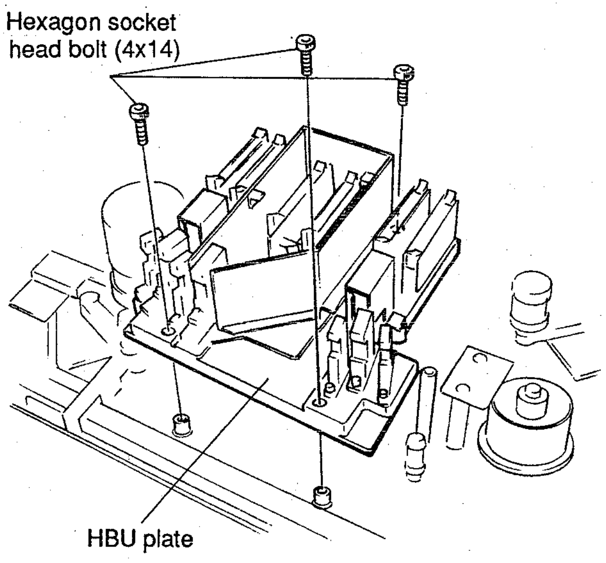
1) Unfasten the three hexagon socket head bolts (2.6x5) to remove the PB flexible shield (A).
2) Remove connectors CN191, 192, 195, 196, 197 and 198.


Hexagon socket head bolt (2.6x5)
PB flexible shield (A)
CN196
CN195
CN191
CN192
CN197
CN198

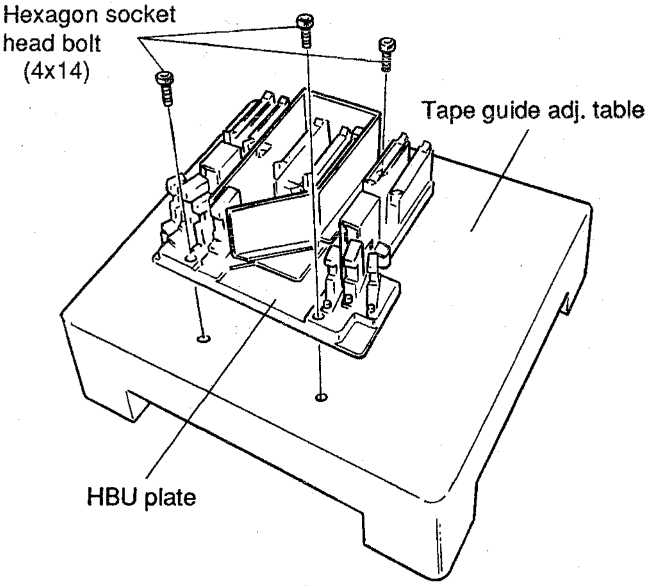
3) Remove the two hexagon socket head bolts (2.6x5) to take out the tape sensor.


Tape sensor
Hexagon socket head bolt (2.6x5)

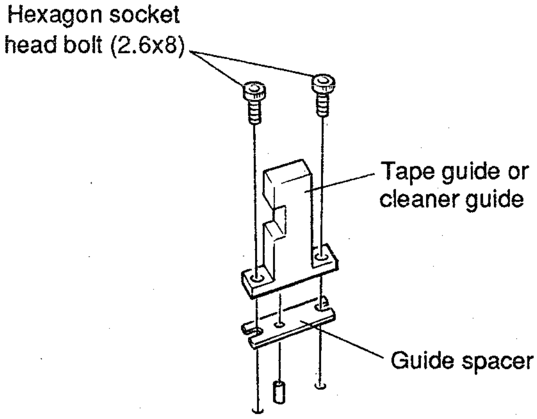
4) Remove the three hexagon socket head bolts (4x14) to take out the HBU plate.


Hexagon socket head bolt (4x14)
HBU plate

5) Secure the HBU plate to the Tape guide adj. table with the three hexagon socket head bolts (4x14).
(Fastening torque: 18kg·cm)

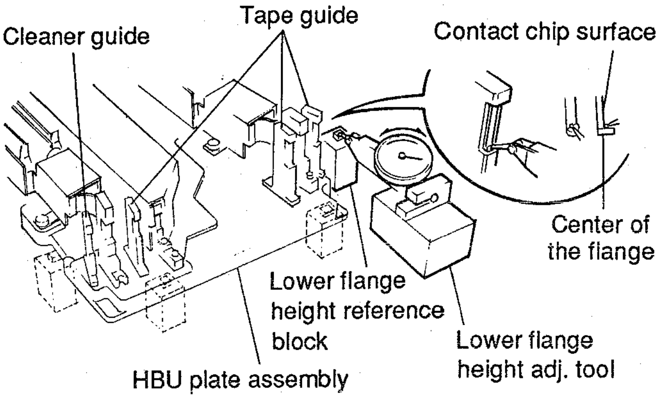

Hexagon socket head bolt (4x14)
Tape guide adj. table
HBU plate

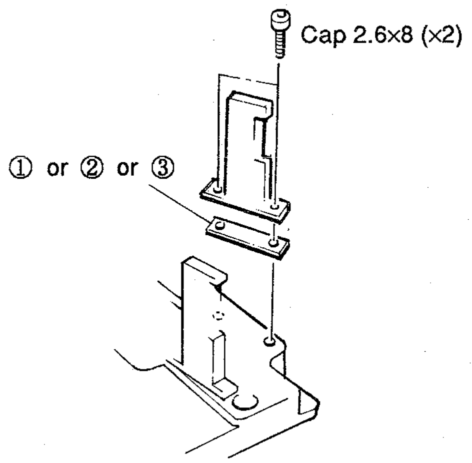
6) Remove the two hexagon socket head bolts (2.6x8) to take out the replacement tape guide and cleaner guide.
Simultaneously, remove the guide spacer for adjustment.


Hexagon socket head bolt (2.6x8)
Tape guide or cleaner guide
Guide spacer

2. Installation adjustment
(Refer to the following figure.)

1) Mount the tape guide and the cleaner guide on the HBU plate with the two screws (Cap. 2.6x8).
(Fastening torque: 6kg·cm)
2) Locate the lower flange height reference block close to the tape guide and the cleaner guide.
3) Set the probe of the lower flange height adjustment tool to the reference surface of the lower flange height reference block, and turn the scale so that the pointer points at 0.
4) Set the probe of the height adjustment tool at the center of the flange surface of the tape guide and the cleaner guide to touch the contact chip, and check that the height is within the specification (within the standard height of ±0.005mm). If out of the specification, insert a ① guide spacer (0.01mm), ② guide spacer (0.02mm) or ③ guide spacer (0.03mm) to adjust the height.
(Fastening torque: 6kg·cm)
5) Move the probe from the right to the left along the contact chip to check that the height fluctuation is within the specification (within the standard fluctuation of ±0.005mm).
Note : Do not move the probe from the left to the right.


Cleaner guide
Tape guide
Contact chip surface
Center of the flange
Lower flange height reference block
HBU plate assembly
Lower flange height adj. tool

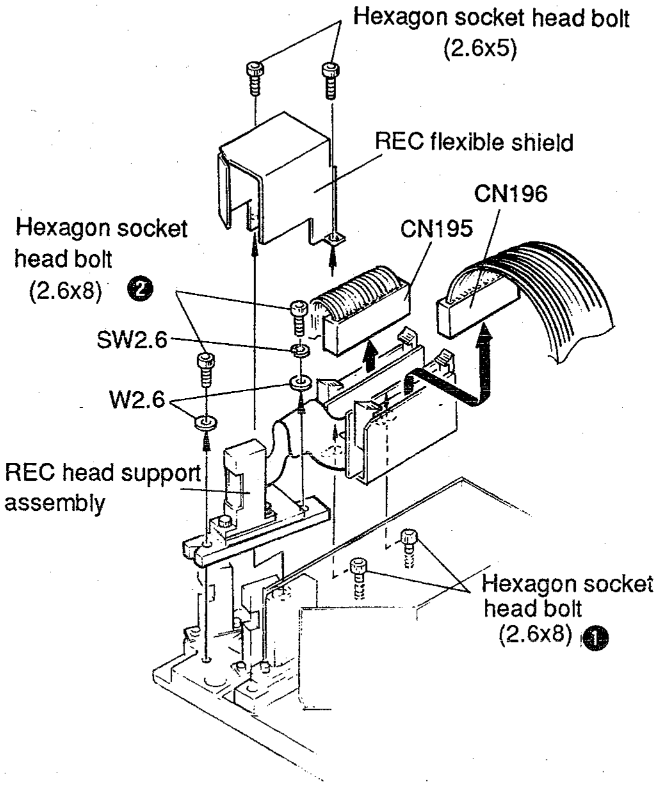

Cap 2.6×8 (×2)
① or ② or ③

5-3. HEAD REPLACEMENT

5-3-1. ADVANCE REC head replacement

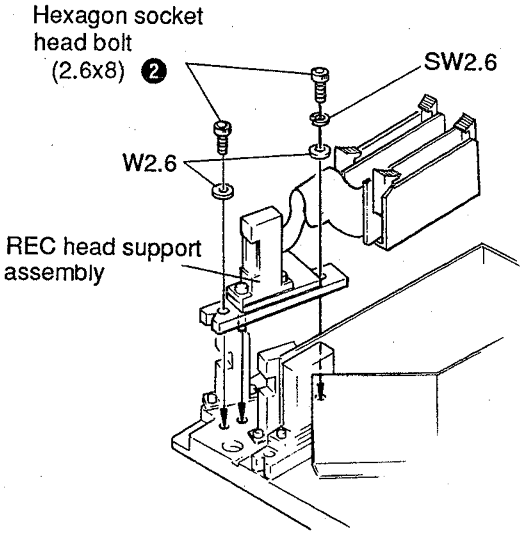
1. Removal of parts
   (Refer to the following figure.)

1) Disconnect connectors CN195 and 196.
2) Unfasten the two hexagon socket head bolts (2.6x5) to remove the REC flexible shield.
3) Loosen the two hexagon socket head bolts (2.6x8) ❶ securing the head connector plate to remove the plate from the HBU plate as shown in the figure.
4) Remove the two hexagon socket head bolts (2.6x8)❷, the two washers (W2.6) and one spring washer (SW2.6) to take out the REC head support assembly.

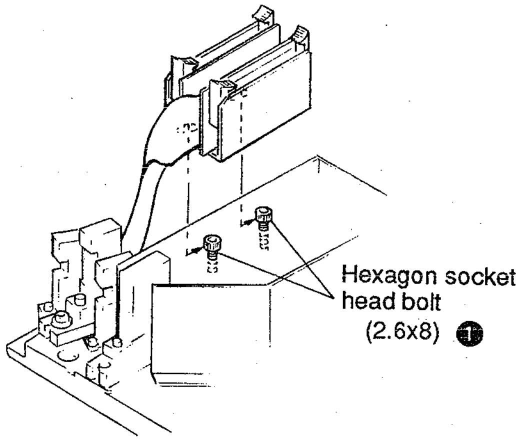

Hexagon socket head bolt (2.6x5)
REC flexible shield
CN196
CN195
Hexagon socket head bolt (2.6x8) ❷
SW2.6
W2.6
REC head support assembly
Hexagon socket head bolt (2.6x8) ❶

2. Installation
   (Refer to the following figure.)

1) Position the new REC head support assembly with the positioning pin, and secure it with the two hexagon socket head bolts (2.6x8)❷, the two washers (W2.6) and one spring washer (SW2.6). (Fastening torque: 6kg·cm)


Hexagon socket head bolt (2.6x8) ❷
SW2.6
W2.6
REC head support assembly

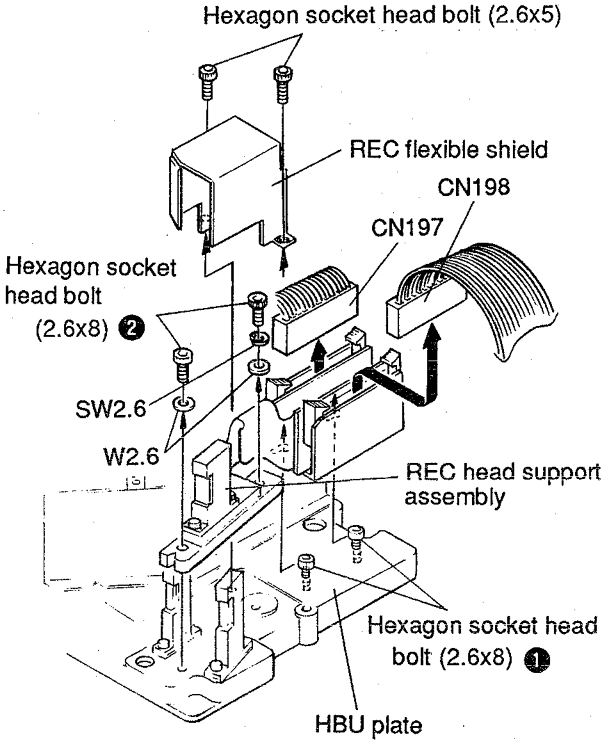
2) Mount the head connector plate as shown in the figure, and secure it with the two hexagon socket head bolts (2.6x8) ❶.


Hexagon socket head bolt (2.6x8) ❶

5-3-2. SYNC REC head replacement

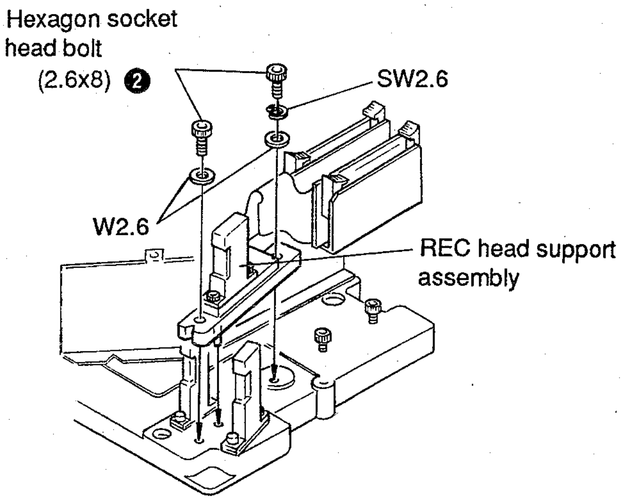
1. Removal of parts
   (Refer to the following figure.)

1) Disconnect connectors CN197 and 198.
2) Remove the two hexagon socket head bolts (2.6x5) to take out the REC flexible shield.
3) Loosen the two hexagon socket head bolts (2.6x8) ❶ securing the head connector plate to take out the plate from the HBU plate as shown in the figure.
4) Remove the two hexagon socket head bolts (2.6x8)❷, the two washers (W2.6) and one spring washer (SW2.6) to take out the REC head support assembly.

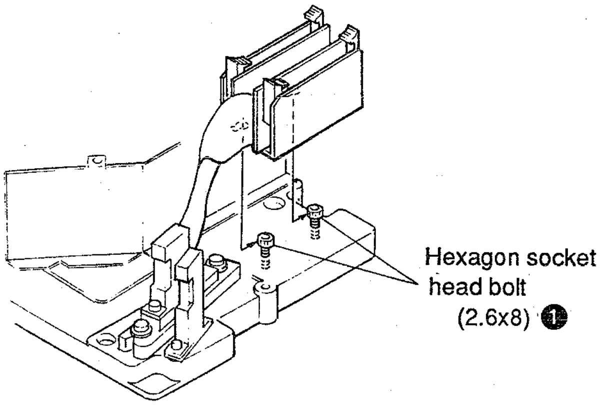

Hexagon socket head bolt (2.6x5)
REC flexible shield
CN198
CN197
Hexagon socket head bolt (2.6x8) ❷
SW2.6
W2.6
REC head support assembly
Hexagon socket head bolt (2.6x8) ❶
HBU plate

2. Installation
   (Refer to the following figure.)

1) Position the new REC head support assembly with the positioning pin, and secure it with the two hexagon socket head bolts (2.6x8)❷, the two washers (W2.6) and one spring washer (SW2.6). (Fastening torque: 6kg·cm)


Hexagon socket head bolt (2.6x8) ❷
SW2.6
W2.6
REC head support assembly

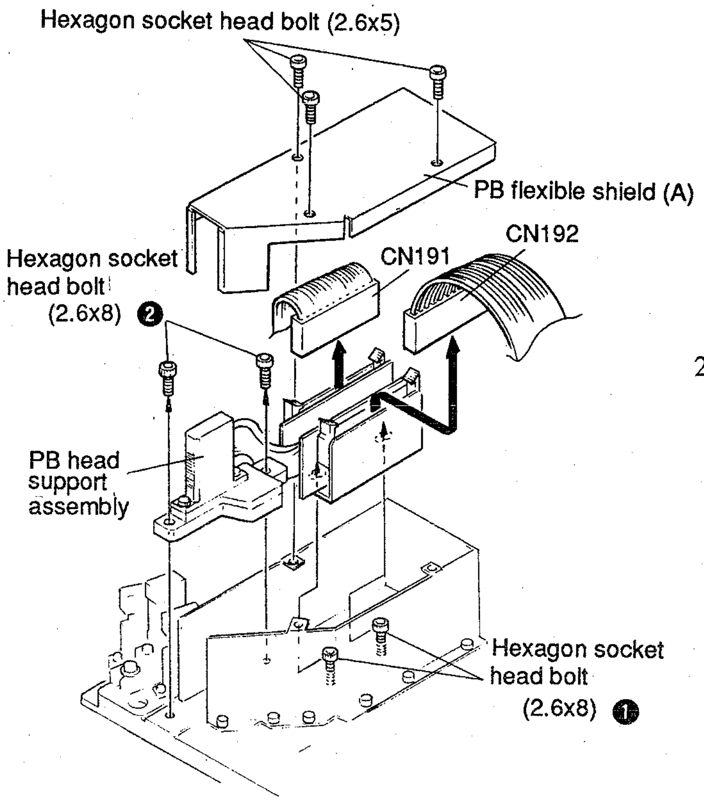
2) Mount the head connector plate as shown in the figure and secure it with the two hexagon socket head bolts (2.6x8)❶.


Hexagon socket head bolt (2.6x8) ❶

5-3-3. PB head replacement

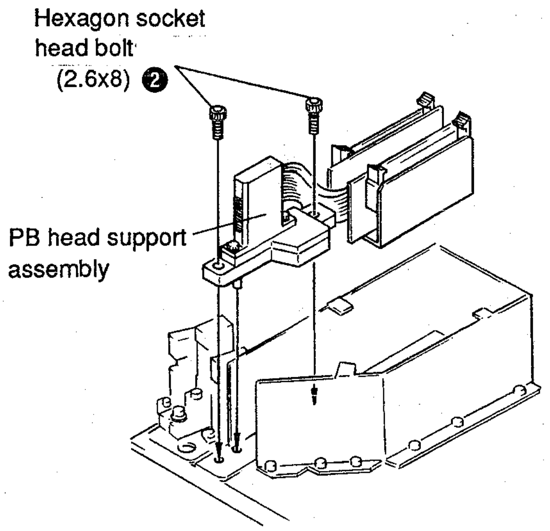
1. Removal of parts
   (Refer to the following figure.)

1) Unfasten the three hexagon socket head bolts (2.6x5) to take out the PB flexible shield (A).
2) Disconnect connectors CN191 and 192.
3) Loosen the two hexagon socket head bolts (2.6x8) ❶ securing the head connector plate to take out the plate from the HBU plate as shown in the figure.
4) Remove the hexagon socket head bolts (2.6x8) ❷ to take out the PB head support assembly.

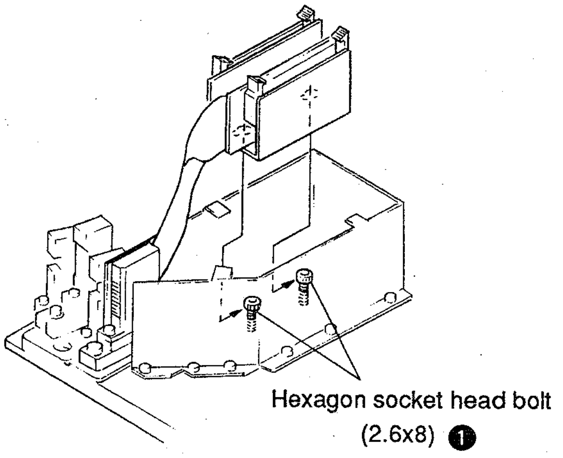

Hexagon socket head bolt (2.6x5)
PB flexible shield (A)
CN192
CN191
Hexagon socket head bolt (2.6x8) ❷
PB head support assembly
Hexagon socket head bolt (2.6x8) ❶

2. Installation

1) Position the new PB head support assembly with the positioning pin, and secure it with the two hexagon socket head bolts (2.6x8)❷.
   (Fastening torque: 6kg·cm)


Hexagon socket head bolt (2.6x8) ❷
PB head support assembly

2) Mount the head connector plate as shown in the figure, and secure it with the two hexagon socket bolts (2.6x8)❶.

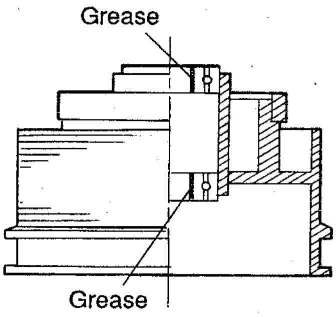

Hexagon socket head bolt (2.6x8) ❶

5-4. CAPSTAN REPLACEMENT

5-4-1. Capstan roller replacement

(Refer to the following figure.)

1) Remove the CRF-1 board.
2) Remove the KL clip to replace the capstan roller. At this time, apply grease to the inner circumference of the capstan roller bearing.


Grease
Grease

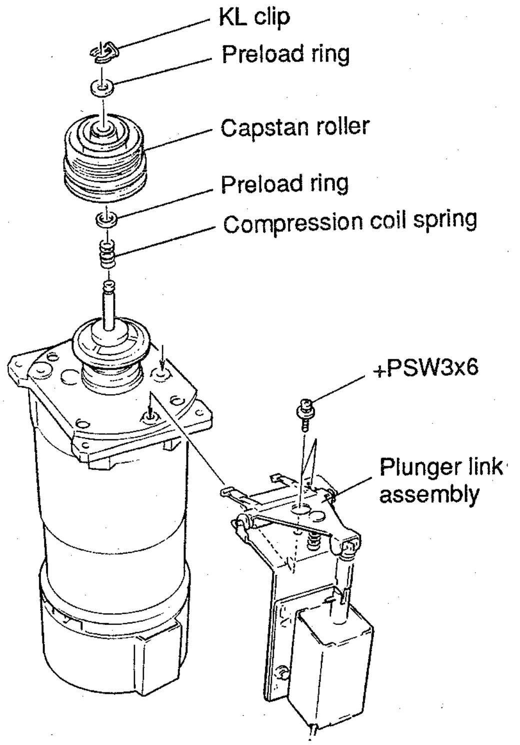
5-4-2. Clutch disc and bearing replacement

(Refer to the following figure.)

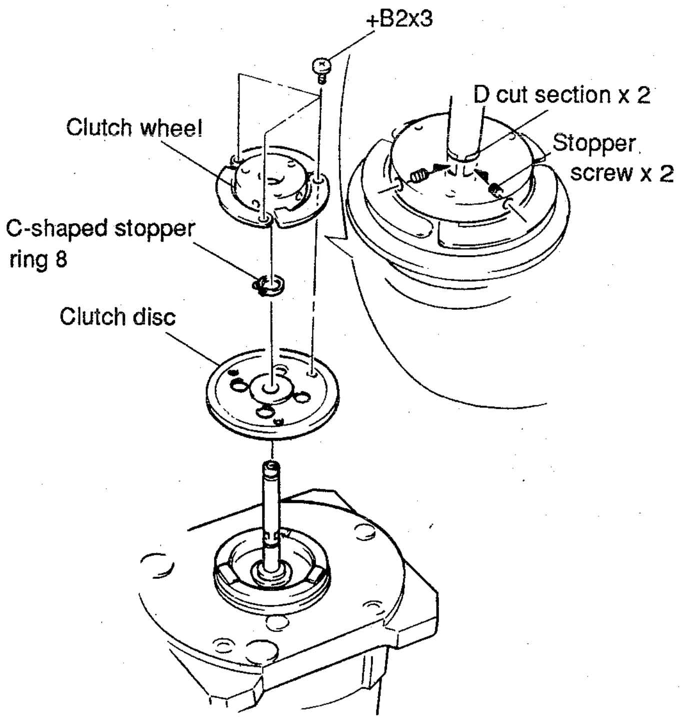
Measuring instrument

Grip ring pliers (ST-01 Type)

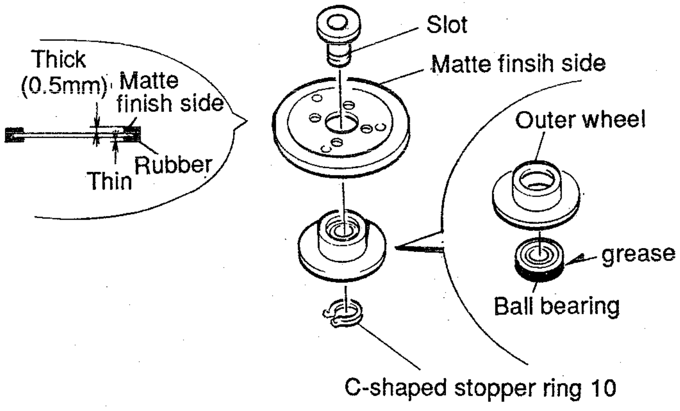
1) Remove the CRF-1 board.
2) Remove the capstan roller, and the plunger link assembly.


KL clip
Preload ring
Capstan roller
Preload ring
Compression coil spring
+PSW3x6
Plunger link assembly

3) Remove the clutch wheel and the clutch disc.


+B2x3
Clutch wheel
D cut section x 2
Stopper screw x 2
C-shaped stopper ring 8
Clutch disc

4) Replace the clutch disc and the bearing.
   At this time, apply grease to the outer circumference of the bearing.
   Be careful not to confuse the inside and outside of the clutch disc.


Thick (0.5mm)
Matte finish side
Thin
Rubber
Slot
Matte finsih side
Outer wheel
grease
Ball bearing
C-shaped stopper ring 10

5-5. REEL MOTOR ASSEMBLY REPLACEMENT

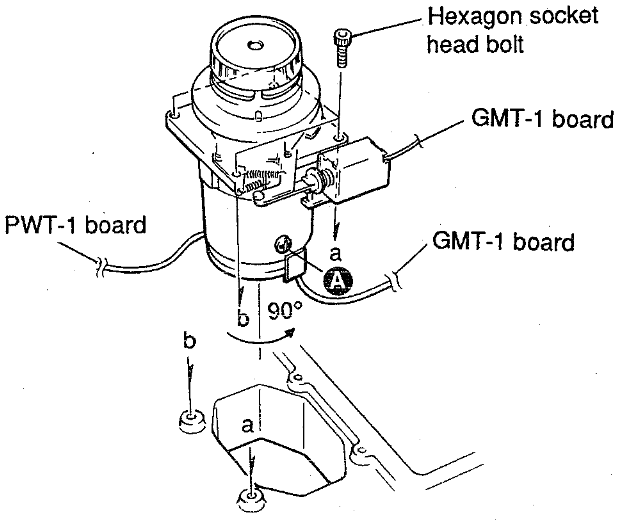
5-5-1. Reel motor assembly and reel motor DTM-5245G replacement (applicable to both S side and T side)

(Refer to the following figure.)

Measuring instrument
Brake band guide positioning jig
Thickness gauge

1. Removal of the reel motor assembly

1) Pull up the mechanical chassis and pull out the power harness connector of the reel motor from the PWT-1 board.
2) Pull out the harness connectors to the R-DME and planger from the GMT-1 board on the mechanical chassis respectively.
3) Remove the four hexagon socket head bolts and pull the reel motor assembly upward by 90° rotation on the mechanical chassis. See the figure shown below.
(so as to prevent the point Ⓐ from contacting the chassis)


Hexagon socket head bolt
GMT-1 board
PWT-1 board
GMT-1 board
a
Ⓐ
b
90°
b
a

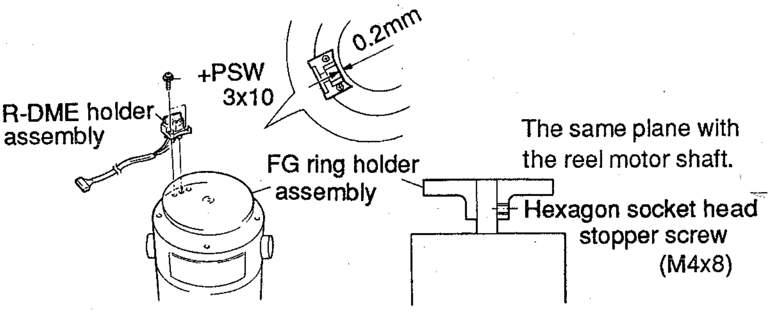
2. Attachment and removal of the reel table assembly
Proceed according to items 1), 3) and 4) of "5-5-2. Brake band assembly replacement".

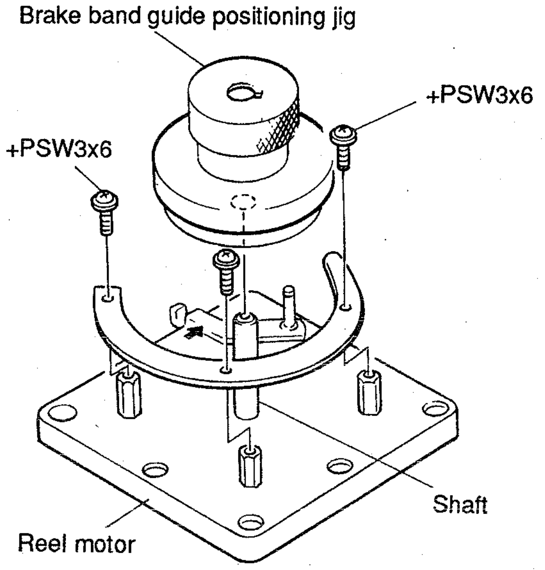
3. Mounting the FG ring holder assembly and R-DME holder

1) Mount the FG ring holder assembly on the motor shaft with the hexagon socket head bolt (M4x8).
2) Mount the R-DME holder assembly with the +PSW3x10 screw.

Note:
- Set the FG ring holder assembly so that the reel motor shaft end is on the same plane with the bottom of the FG ring holder assembly when mounting the shaft.
- Adjust the R-DME holder assembly with the thickness gauge so that the clearance to the FG ring is 0.2mm and further so that there is no slant toward the DC motor center.

Top View


0.2mm
+PSW 3x10
R-DME holder assembly
FG ring holder assembly
The same plane with the reel motor shaft.
Hexagon socket head stopper screw (M4x8)


Brake band guide positioning jig
+PSW3x6
+PSW3x6
Shaft
Reel motor

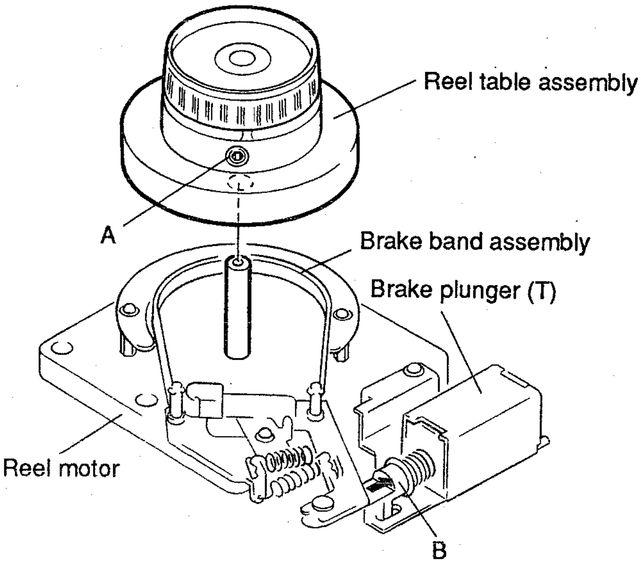
4. Mounting the brake band guide
Put the brake band guide positioning jig on the reel motor shaft, and pressing the brake band guide in the direction of the arrow mark, fasten the three +PSW3x6 screws.

5-5-2. Brake band assembly replacement (applicable to both S side and T side)

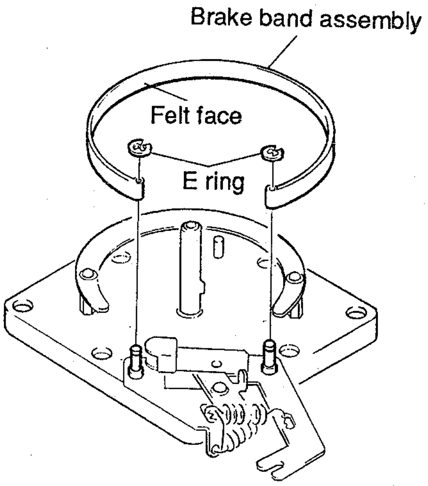
(Refer to the following figure.)

Measuring instrument
Torque driver bit set
Torque driver (26 kg·cm)

1) Removal of the reel table assembly
   Loosen the drum fixing screw at the A section. After one or two rotations, the screw is slightly fastened. Then, stop when the screw is once again loose.
   (*Be careful not to damage the fixing screw by loosening too much.)
   Press the brake plunger B section in the direction of the arrow mark to remove the reel table assembly in the brake release condition.



2) Remove the two E rings to take out the brake band assembly, and replace it with the new brake band assembly.
   (*Be careful not to touch the felt surface of the brake band assembly.)
3) Clean the surface of the reel table assembly that comes in contact with the brake band with alcohol and then wipe it.
4) While pressing the B section, insert the reel table assembly into the motor shaft and fasten drum fixing screw A.
   (Fastening torque: 18kg·cm)



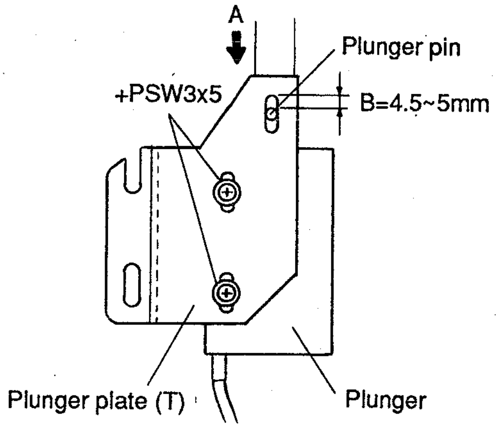
5-5-3. Brake plunger replacement (applicable to both S side and T side)

(Refer to the following figure.)

1) Remove the two +PS3x5 screws securing the plunger and replace the plunger.

Note:

- When mounting the plunger solenoid on the plunger plate (T), fasten the screw (+PS3x5) so that the B measurement becomes 4.5 to 5mm with the plunger iron core pressed in the direction of arrow A.



5-5-4. Reel table assembly and reel drum replacement (applicable to both S side and T side)

Note:

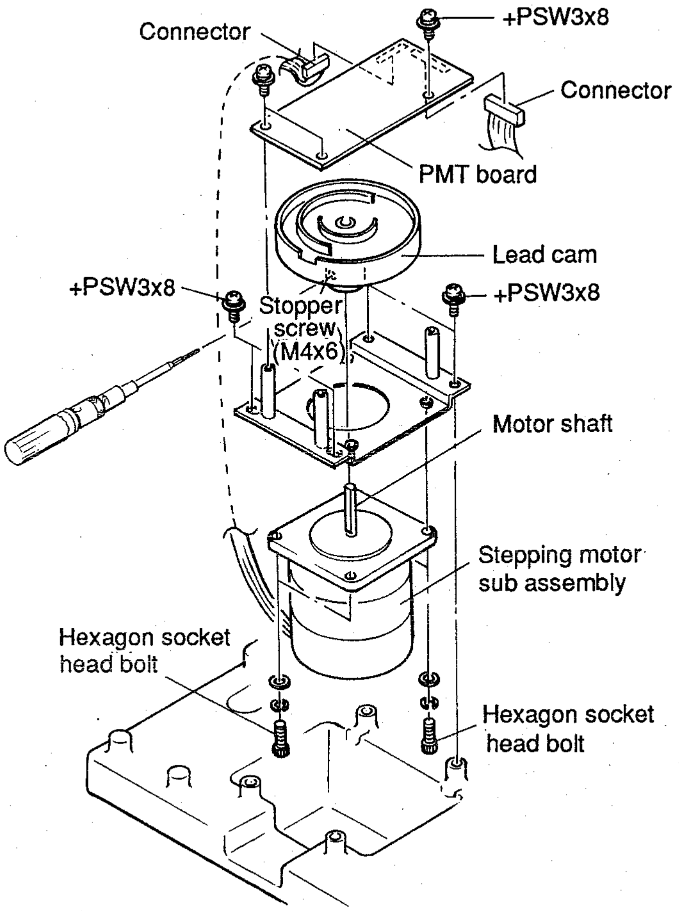
- When replacing the reel table assembly, perform the reel table assembly replacement according to the same procedure as items 1), 3) and 4) of ''5-5-2. Brake band assembly replacement''.

5-6. STEP MOTOR SUB ASSEMBLY REPLACEMENT

(Refer to the following figure.)

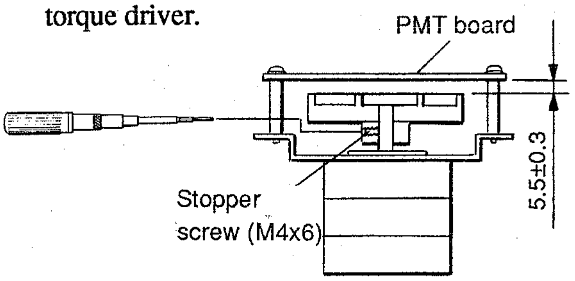
Measuring instrument
Torque driver bit set
Torque driver (26 kg·cm)

1) Remove the four +PSW3x8 screws to take out the step motor assembly.
2) Disconnect the PMT board connector.
3) Unfasten the three +PSW3x8 screws to remove the board.
4) Loosen the stopper screw (M4x6) to remove the lead cam.
5) Remove the four hexagon socket head bolts to take out the step motor sub assembly.
6) Assemble in the reverse order of 1) to 5) above.


Connector
+PSW3x8
Connector
PMT board
Lead cam
+PSW3x8
Stopper screw (M4x6)
+PSW3x8
Motor shaft
Stepping motor sub assembly
Hexagon socket head bolt
Hexagon socket head bolt

Note:

- Adjust the height of the lead cam so that the clearance between the component side of the PMT board and the top of the lead cam is 5.5 mm ±0.3mm.
- Fasten the stopper screw at 16 kg·cm using the torque driver.

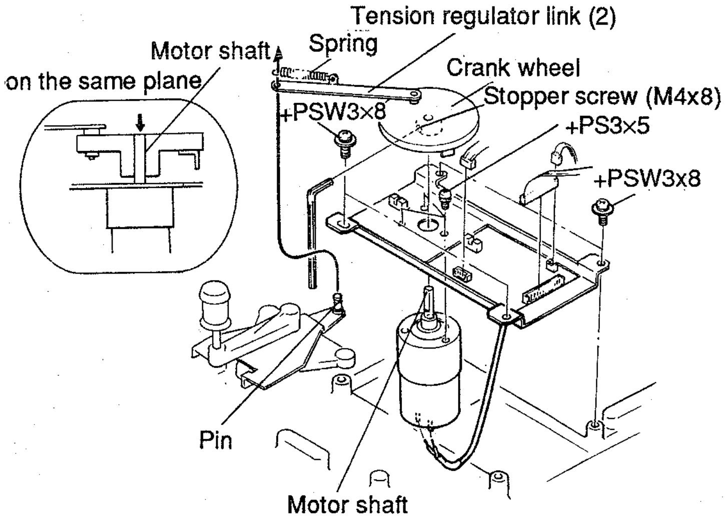

PMT board
Stopper screw (M4x6)
5.5±0.3

5-7. GEARED MOTOR REPLACEMENT

(Refer to the following figure.)

1) Remove the tension regulator link (2) and the spring from the pin.
2) Remove the four +PSW3x8 screws to take out the geared motor assembly.
3) Set the claw of the geared motor upward and unsolder the harness.
4) Loosen the stopper screw (M4x8) to remove the crank wheel.
5) Remove the three +PS3x5 screws to take out the geared motor.
6) Assemble in the reverse order of 1) to 5) above.

∗ Set so that the motor shaft end comes on the same plane as the crank wheel.

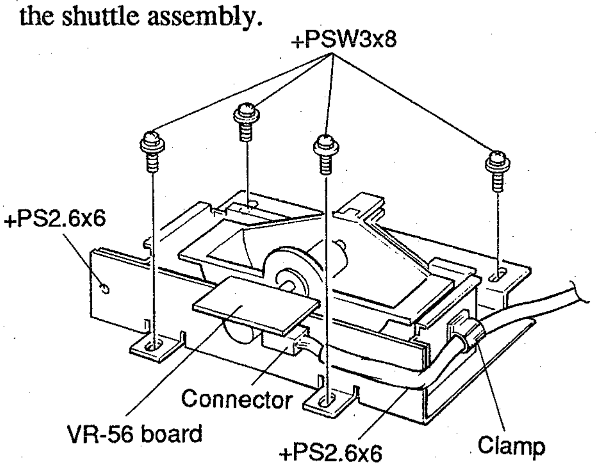

Tension regulator link (2)
Motor shaft
Spring
on the same plane
Crank wheel
+PSW3x8
Stopper screw (M4x8)
+PS3x5
+PSW3x8
Pin
Motor shaft

5-8. ASSEMBLING AND ADJUSTMENT WHEN REPLACING SHUTTLE ASSEMBLY

(Refer to the following figure.)

Measuring instrument
Multimeter

1) Pull up the mechanical chassis and open the control panel.
(Open the control panel referring to "2-3. Opening the Operation Panel.)
2) Pull out the connector from the VR-56 board and remove the wire rod from the clamp.
3) Remove the four +PSW3x8 screws to take out the shuttle assembly.


+PSW3x8
+PS2.6x6
Connector
VR-56 board
+PS2.6x6
Clamp

4) Pass the dial assembly shaft through the shuttle receptacle, the presser washer, the shuttle spring and the Tr bushing and secure with the E ring.
5) Secure the variable resistor to the shuttle bracket with the supplied washer and nut.
6) Pass the shuttle cylinder through the dial assembly shaft and the variable resistor shaft and temporarily fasten the two +PS2.6x6 screws.

Note:

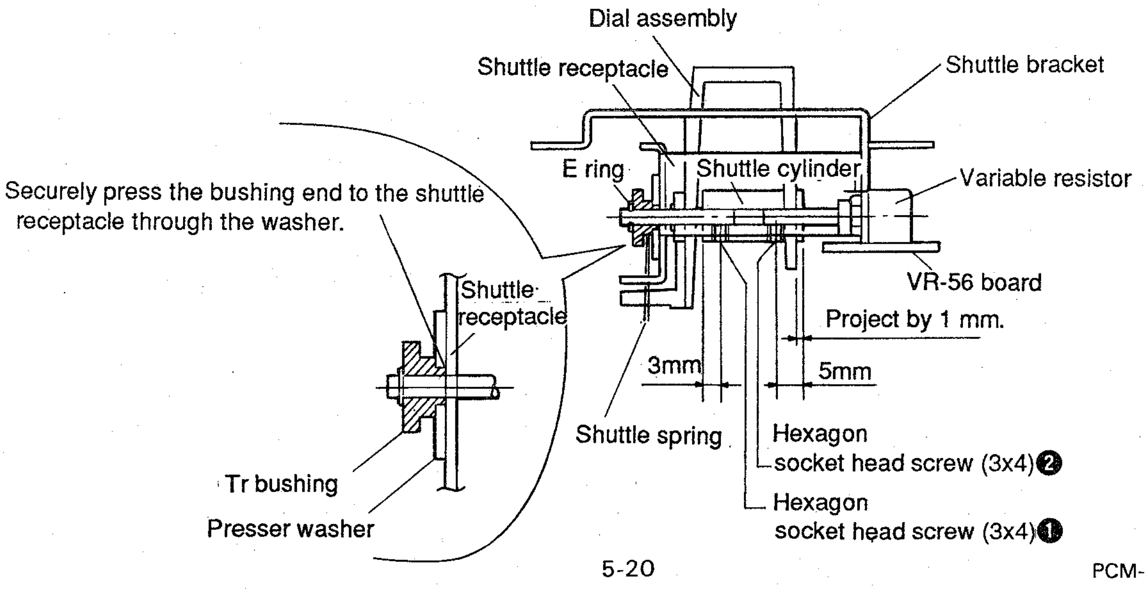
- · Hexagon socket head screws (3x4) ❶ and ❷ of the shuttle cylinder are positioned at 3mm and 5mm from the end. (The variable resistor side is 5mm.)
- · First, temporarily fasten the two screws (+PS2.6x6) of the shuttle receptacle and the shuttle bracket, and securely fasten them after fastening hexagon socket head screws ❶ and ❷ of the shuttle cylinder. The installation in the reverse order causes both shafts of the variable resistor and the dial assembly to deviate, resulting in unever rotation.

7) As shown in the following figure, press the Tr bushing through the presser washer to the shuttle receptacle and protrude the shuttle cylinder right end by 1mm from the dial assembly to fasten the hexagon socket head screws (3x4) ❶ and ❷.
8) Securely fasten the two temporarily fixed +PS2.6x6 screws.
9) Adjust the variable resistor so that the dial in the neutral condition (where no outer force exists) becomes as follows:

$$\frac{R_{23}}{R_{13}} = 0.45 - 0.55 \ldots ①$$

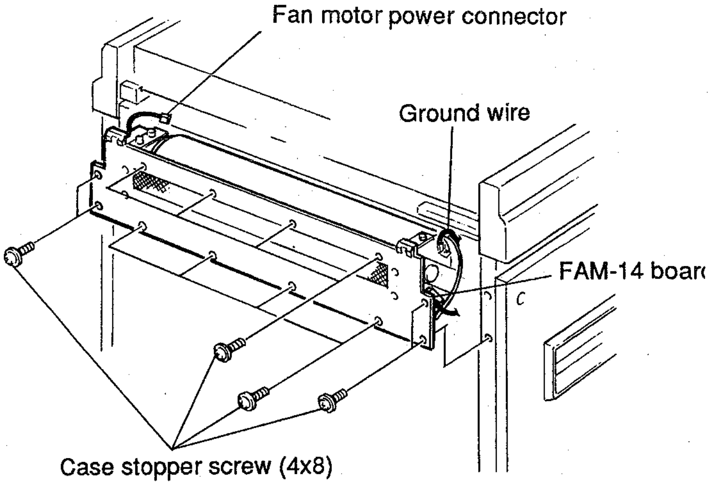
R_{13}: the resistance value between Pin 1 and Pin 3 of the VR-56 board connector
R_{23}: the resistance value between Pin 2 and Pin 3 of the VR-56 board connector

Apply the tester between Pin 2 and Pin 3 on the VR-56 board connector and loosen hexagon socket head screw (3x4) ❶. Then, rotate the shuttle cylinder with your finger to the value satisfying the resistance value ①, and fasten hexagon socket head screw (3x4) ❶ for adjustment.

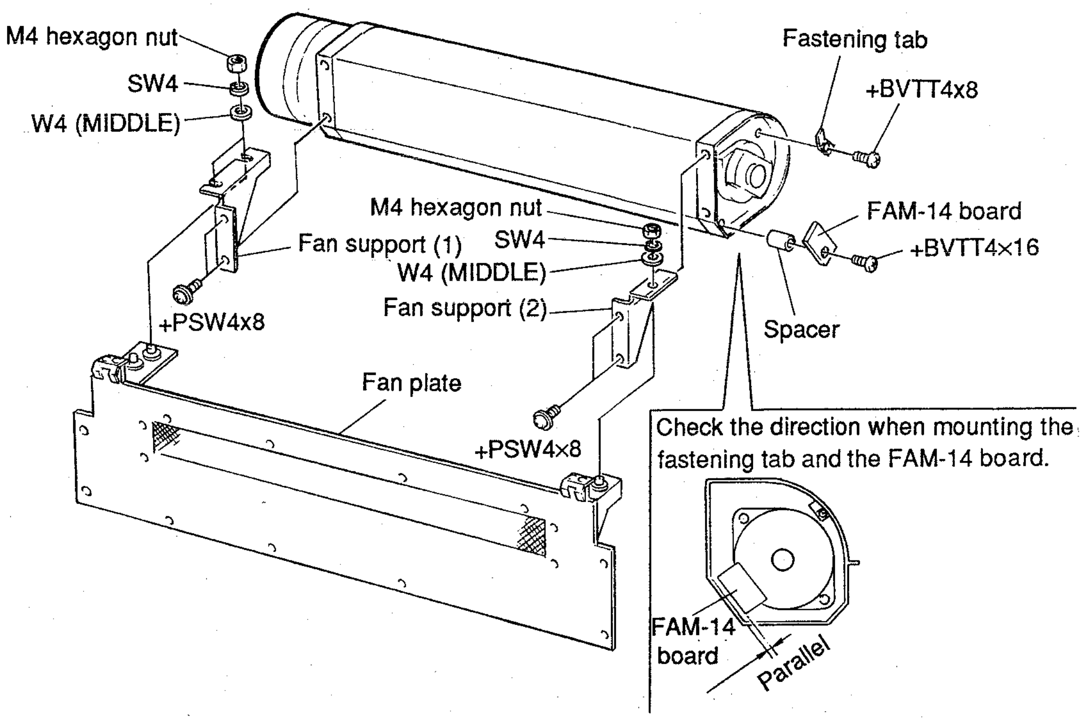

Dial assembly
Shuttle receptacle
Shuttle bracket
E ring
Shuttle cylinder
Variable resistor
Securely press the bushing end to the shuttle receptacle through the washer.
Shuttle receptacle
VR-56 board
Project by 1 mm.
3mm
5mm
Shuttle spring
Hexagon socket head screw (3x4)❷
Hexagon socket head screw (3x4)❶
Tr bushing
Presser washer

5-9. CROSS FLOW FAN REPLACEMENT

1) Pull up the mechanical chassis and remove the reel panel.
   (Refer to "2-4. Removal of the Mechanical Panel and the Reel Panel".
2) Remove the twelve case stopper screws with claw (4x8) fixing the fan plate to pull out the fan plate assembly slightly, and pull out the fan motor power connector, the FAM-14 board connector and the ground wire. (The ground wire is attached with the fastening terminal.)
   (Refer to the figure on the right.)


Fan motor power connector
Ground wire
FAM-14 boar
Case stopper screw (4x8)

3) Remove the three M4 hexagon nuts to take out the fan from the fan plate. (Refer to the following figure.)
4) Remove the four +PSW4x8 screws to take out the fan support from the fan. (Refer to the following figure.)
5) Remove the FAM-14 board and the fastening tab to mount on the new fan. (Refer to the following figure.)
6) Assemble in the reverse order of removal.
7) After installing the body, pull out CN702 (AC IN of the fan) on the rear of the power block of the unit and check that the LOCATE TIME display section displays E._FAn .


M4 hexagon nut
SW4
W4 (MIDDLE)
Fastening tab
+BVTT4x8
M4 hexagon nut
Fan support (1)
SW4
W4 (MIDDLE)
FAM-14 board
+BVTT4×16
+PSW4x8
Fan support (2)
Spacer
Fan plate
+PSW4×8
FAM-14 board
Parallel

Check the direction when mounting the fastening tab and the FAM-14 board.

5-10. SLIDE LINK POSITION ADJUSTMENT

(Refer to the following figure.)

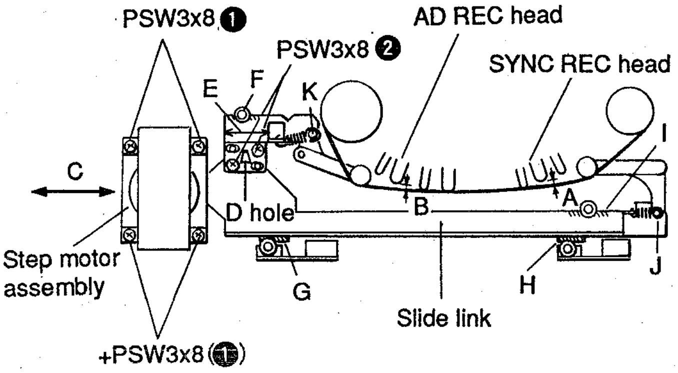
1) Load the tape and set to the STOP mode.
2) Loosen the four PSW3x8 screws (❶) so that clearance A between the SYNC REC head and the tape becomes 0.5mm by visual observation. Then, move the step motor assembly in the C direction for adjustment, and fasten the screws.
3) Loosen the two PSW3x8 screws (❷) so that clearance B between the AD REC head and the tape becomes 0.5mm by visual observation. Then, insert the slotted screwdriver into the D hole to move the slide link in the E direction for adjustment, and fasten the screws.
4) Check once again after adjustment.
5) Apply grease to the roller and the sheet metal sliding surface (F, G, H, I, J and K sections).

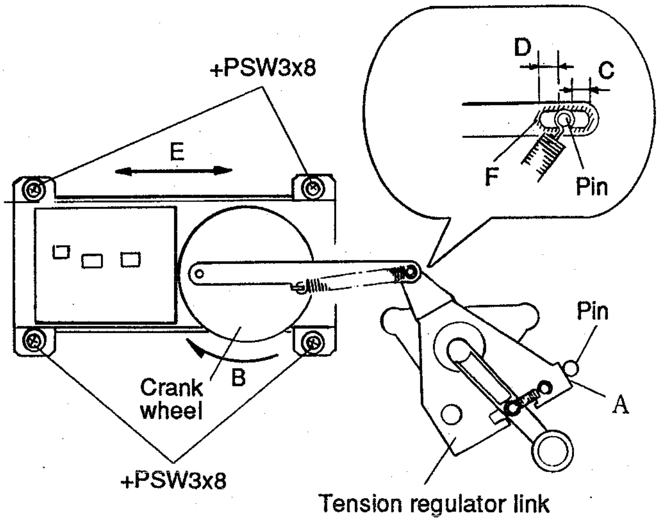
5-11. TENSION REGULATOR LINK POSITION ADJUSTMENT

(Refer to the following figure.)

1) Turn the crank wheel in the B direction so that the tension regulator link A section contacts the pin.
2) Loosen the four +PSW3x8 screws so that clearances C and D between the pin and the axis become equal. Then, move the geared motor assembly in the E direction for adjustment and fasten the screws.
3) Check the position once again .
4) Apply grease to the F section.

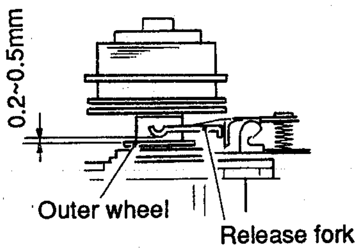
∗ Applicable to both S side and T side.

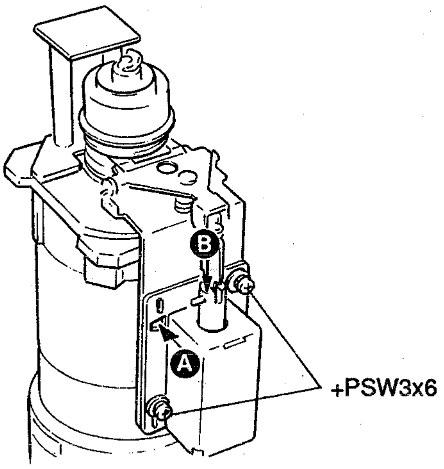

PSW3x8 ❶
AD REC head
PSW3x8 ❷
SYNC REC head
E
F
K
I
C
D hole
B
A
Step motor assembly
G
H
J
Slide link
+PSW3x8 (❶)


+PSW3x8
E
D
C
F
Pin
Pin
A
Crank wheel
B
+PSW3x8
Tension regulator link

5-12. PLUNGER ADJUSTMENT
(See the following figure.)

1) Temporarily fasten the two +PSW3x6 screws. While pressing the point Ⓑ of the plunger and making the clutch set to ON, insert the slotted screwdriver into the hole Ⓐ and adjust the plunger position by rotating the screwdriver so that the clearance between the outer wheel and the release fork becomes 0.2mm to 0.5mm. Then, securely fasten the two +PSW3x6 screws.
2) Press the point Ⓑ of the plunger to set the clutch to ON. When rotating the capstan roller with fingers, check that the outer wheel rotates.

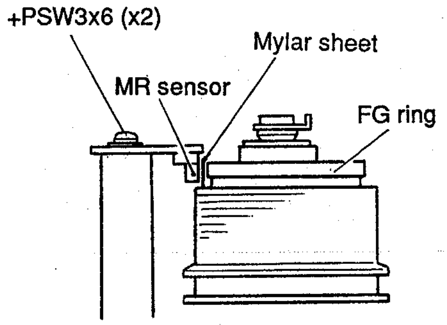




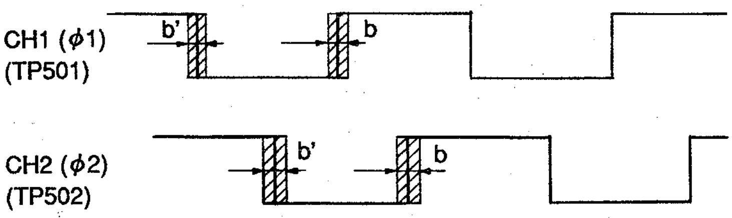
5-13. MR SENSOR CLEARANCE ADJUSTMENT
(Refer to the following figure.)

Measuring instrument
Oscilloscope

1) Connect TP501 and TP502 on the RS-24 board to CH1 and CH2 of the oscilloscope.
2) Gently hold the Mylar sheet or computer sheet with a thickness of 70 to 80μm between the MR sensor on the CRF-1 board and the FG ring of the capstan roller to depress it, and fasten the two +PSW3x6 screws.



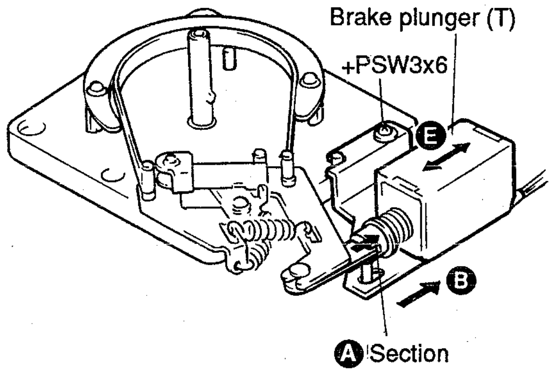
3) Next, load a tape with CTL recorded at Fs 48 kHz or a blank tape to play.
(Set the Fs to 48kHz.)
4) Trigger when CH1 rises in this condition and observe the b width as shown in the following figure.
(Extend in delayed trigger mode for observation.)
5) Then, trigger at the last transition and observe the b' width.
6) Similarly, observe b and b' as for CH2.
7) At this time, check that b and b' of CH1 and CH2 are within 40μsec respectively.
8) If not, repeat from procedure 2).

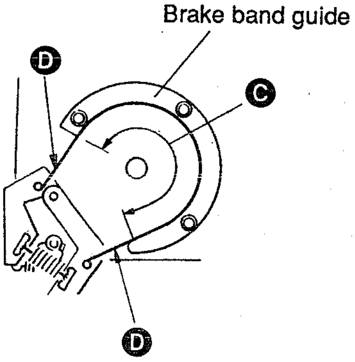


5-14. BRAKE PLUNGER ADJUSTMENT (APPLICABLE TO BOTH S SIDE AND T SIDE)

(See the following figure.)

Loosen the +PSW3x6 screw and press the point Ⓐ of brake plunger (T) in the direction of arrow Ⓑ Then, adjust the plunger position in the direction of arrow E so that the brake band and the brake band guide are positioned along circumferenceⒸ(arrow section) without any clearance and further that the points Ⓓ (two) have no distortion, and fasten the +PSW3x6 screw.


Brake plunger (T)
+PSW3x6
Ⓔ
Ⓑ
Ⓐ Section


Brake band guide
Ⓓ
Ⓒ
Ⓓ

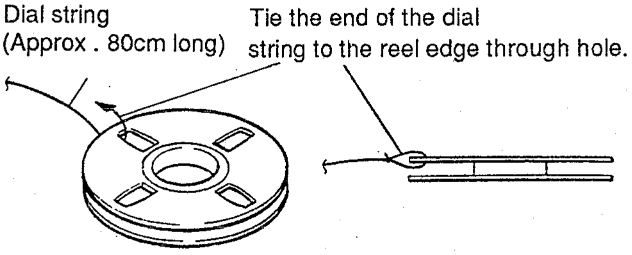
5-15. BRAKE TORQUE ADJUSTMENT (APPLICABLE TO BOTH S SIDE AND T SIDE)

(See the following figure.)

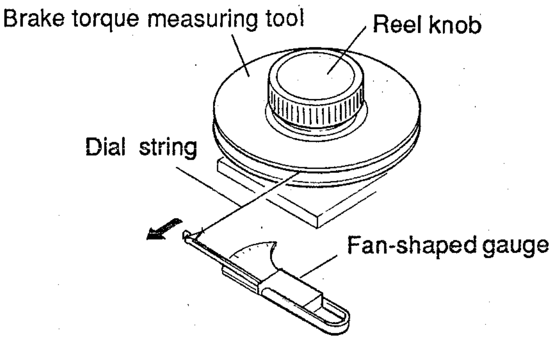
Measuring instrument

Fan-shaped gauge (100 gs, 500 gs)
Empty reel (10 inch)

1) Make the brake torque measuring tool. (Use a Sony empty reel.)


Dial string
(Approx . 80cm long)
Tie the end of the dial string to the reel edge through hole.

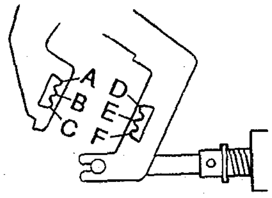
2) Place the brake torque measuring tool on the reel table and fasten the reel knob.
3) Wind the dial string on to the reel and hook the fan-shaped gauge. Then, pull the fan-shaped gauge in the direction of the arrow to measure the brake force.


Brake torque measuring tool
Reel knob
Dial string
Fan-shaped gauge

4) Measure the torgue in both directions and check that the both torgue is within the specifications.
Tightening direction: 470g to 520g
Free-play direction: 100g or less

5) If out of specifications, adjust the spring position. The brake force at each position is as follows.

Spring position	Brake force
A — F	Small
A — E	
A — D	
B — F	
B — E	
B — D	
C — F	
C — E	
C — D	Large

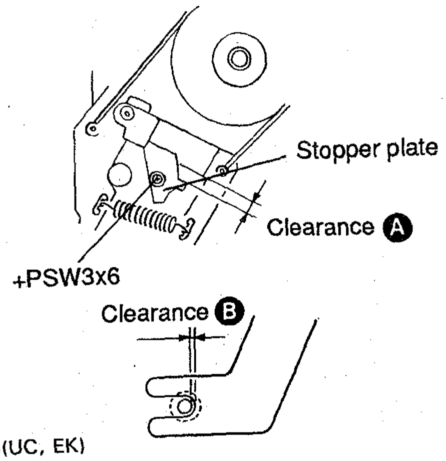


* If the spring position is changed, brake force in both directions will be changed.

6) When the brake force in the tightening direction cannot be adjusted only by the spring position 5), adjust clearance Ⓐ by loosening the +PSW3x6 screw as shown in the following figure to move the stopper plate.
(When the clearance Ⓐ is large, the brake force in the tightening direction will be large.)

* At this time, only the brake force in the tightening direction is changed.

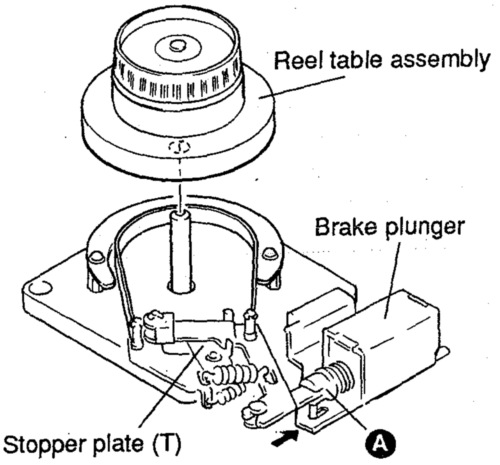
7) When rotating the reel table in the tightening direction of the brake force, check that the clearance Ⓑ exists and apply screw-lock compound to the +PSW3x6 screw.

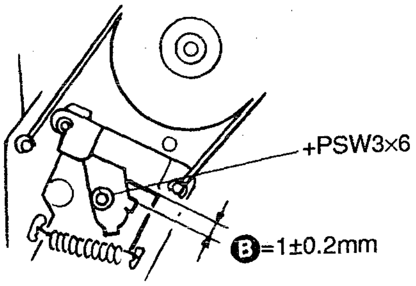


5-16. STOPPER PLATE ADJUSTMENT (APPLICABLE TO BOTH S SIDE AND T SIDE)

(See the following figure.)

· Press the point Ⓐ of the brake plunger in the direction of the arrow mark with your finger, and mount the reel table assembly on it. Loosen the +PSW3x6 screw for adjustment so that the Ⓑ measurement becomes 1±0.2mm, and then, securely fasten it.



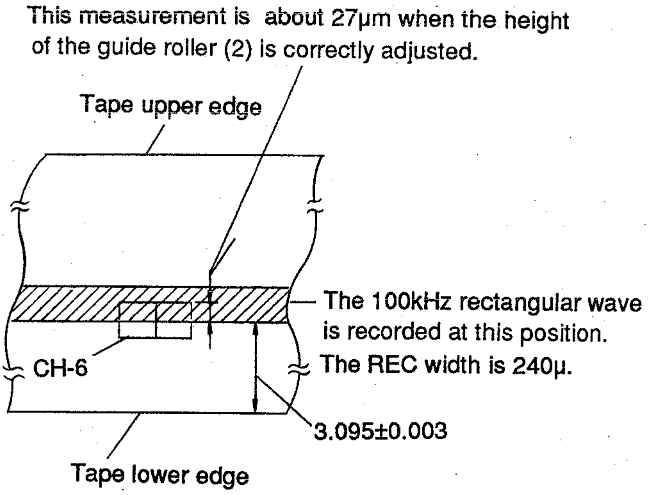


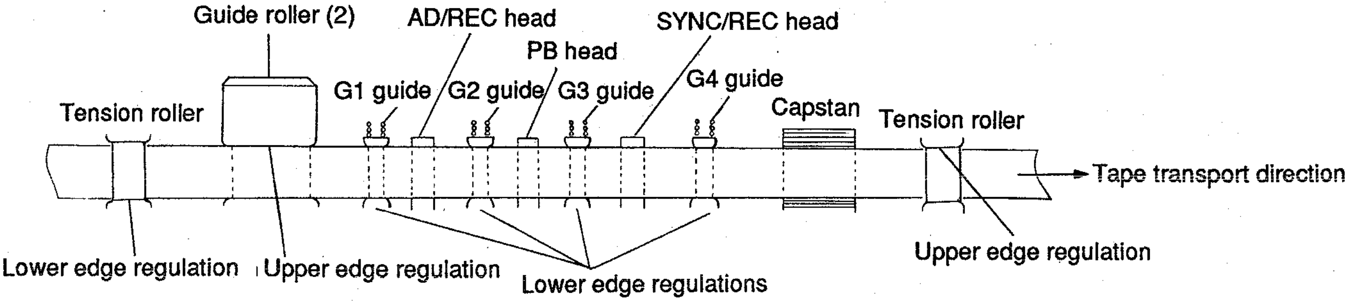
5-17. GUIDE ROLLER (2) HEIGHT ADJUSTMENT

Preliminary information
Be sure to check the guide roller (2) height after replacing the head section or the tape guide, or to perform the height adjustment after replacing the guide roller (2). At this time, the AR3348-1 TRACKING tape is used to record the rectangular wave at the position shown in the figure on the right for 0 to 10 minutes.

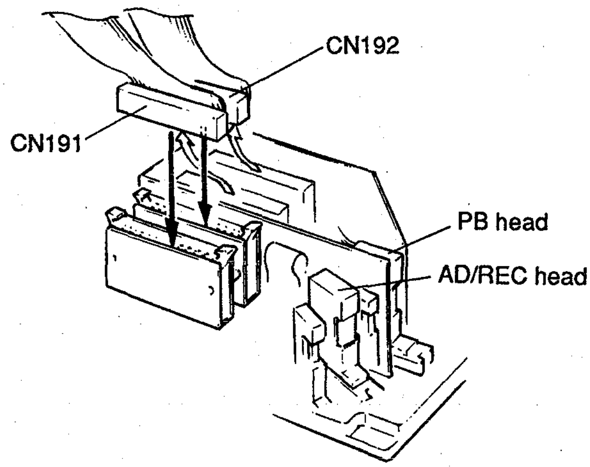
Note: Check the tape specification on adjustment, as tapes other than the AR3348-1 TRACKING tape may have already been used.

Adjust the PCM-3348 tape transport during play mode as shown in the following figure.
The transport system is based on the G1 and G2 guides in HBU. It is important to set so that the guide roller (2) height is parallel to the line connecting the G1 and G2 guides in order to put the tape straight into HBU.


This measurement is about 27μm when the height of the guide roller (2) is correctly adjusted.
Tape upper edge
The 100kHz rectangular wave is recorded at this position.
CH-6
The REC width is 240μ.
3.095±0.003
Tape lower edge


Guide roller (2)
AD/REC head
SYNC/REC head
PB head
Tension roller
G1 guide
G2 guide
G3 guide
G4 guide
Capstan
Tension roller
Tape transport direction
Lower edge regulation
Upper edge regulation
Lower edge regulations
Upper edge regulation

Preparation:
- Prepare the AR3348-1 TRACKING tape.
- Put the DET-1 board on the extension board and plug in.
- Connect the harness going from the PRE-1 board to the PB head, to the AD/REC head.
(Refer to the following figure.)



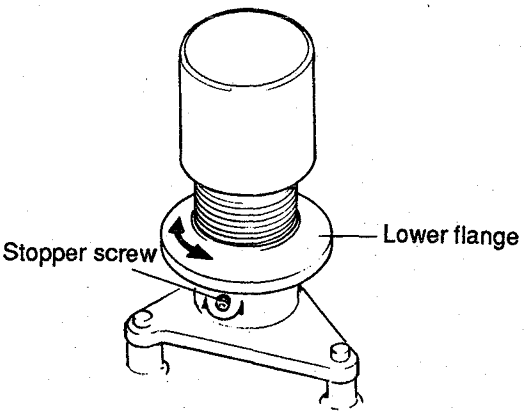
5-17-1. Height adjustment

(Refer to the following figure.)

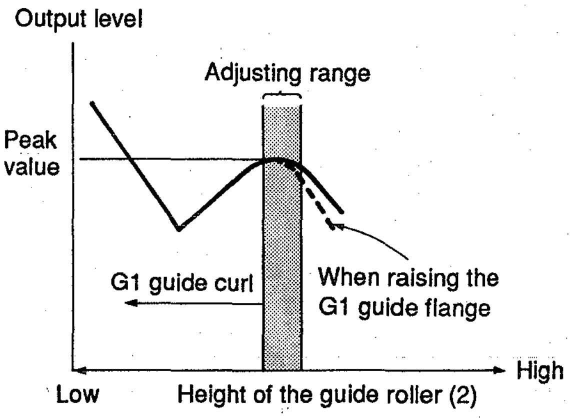
Measuring instrument
Oscilloscope
AR3348-1 TRACKING tape

1) Height adjusting method
Loosen the screw and turn the guide roller (2) lower flange. (Refer to the following figure.)

Turn clockwise viewing from the top - to lower.
Turn counterclockwise viewing from the top - to raise.



2) Play back the 0 to 10 minutes section of the AR3348-1 TRACKING tape.
3) Connect TP1 and E1 of CH6 on the DET-1 board to the oscilloscope to observe the playback output.
4) Adjust the guide roller height so that the output level becomes peak value. The relation between the height of the guide roller and output level is as follows.

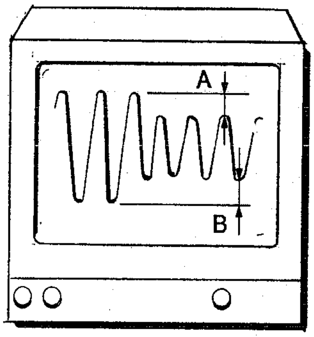


5) Fasten the stopper screw and check the height once again.

* Check that the G1 guide lower flange has no curl. Check that the level decrease, when the G1 guide upper flange is raised, is less than 50mVp-p.

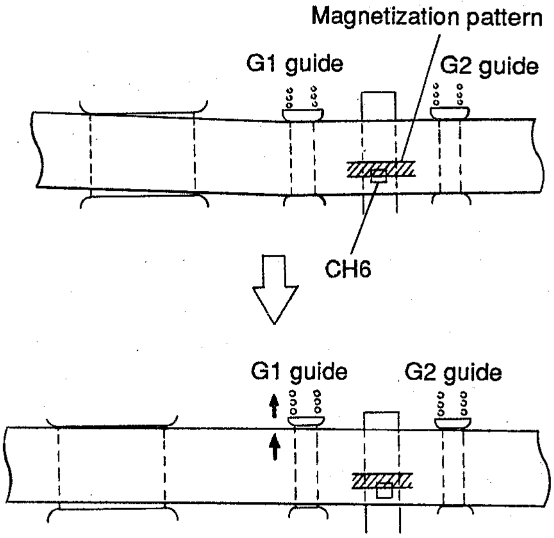
5-17-2. Height check
(Refer to the following figure.)

1) Play back the 0 to 10 minutes section of the AR3348-1 TRACKING tape.
2) Check that no tape float is observed from the guide roller (2) upper flange.
If tape float is observed, perform the procedure described in "5-18. Tension Roller (S side) Height Adjustment" and then, adjust the guide roller (2) height.
3) Connect TP1 and E1 of CH6 on the DET-1 board to the oscilloscope to observe the playback output.

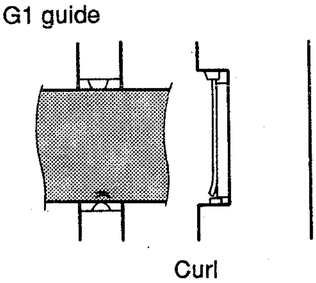


50mV>A+B

4) Check the palyback output, either it decrease or not when you push up the upper flange of G1 guide. (The level decrease should be within 50m Vp-p>A+B.)
If the guide roller (2) is higher, (Pull up the upper frange of G1 guide), the tape is lifted with the G2 guide as fulcrum, and the playback output becomes lower.
If the level is lower than the specification, it is necessary to lower the guide roller (2).



5) Check that no curl is observed on the G1 guide roller lower flange.
If any curl is observed, it is necessary to lift the guide roller (2).



5-18. TENSION ROLLER (S SIDE) HEIGHT ADJUSTMENT

(Refer to the following figure.)

Measuring instrument
Torque driver bit set
Torque driver (12 kg·cm)

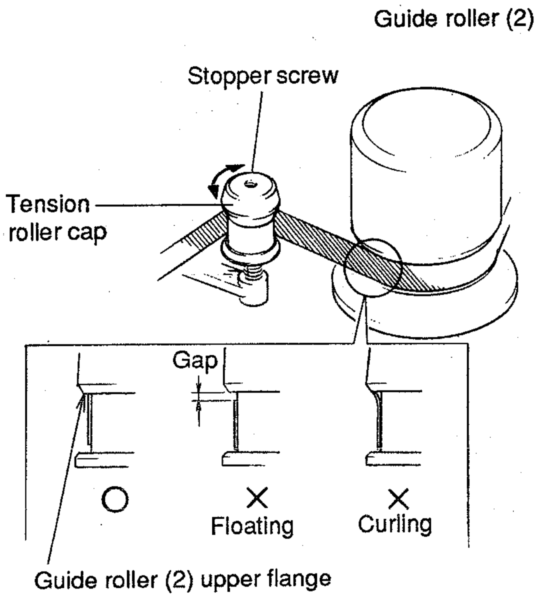
1) Play back the tape, and adjust the tension roller height so that neither float nor curl is observed at the entry point as the tape passes over the upper flange of the guide roller (2).

Adjusting method:

· Loosen the screw on the tension roller cap, and turn the tension roller cap.

Turn clockwise viewing from the top - to lower.
Turn counterclockwise viewing from the top - to raise.

2) Fasten the screw at 4kg·cm using the torque driver, and check the height once again.


Guide roller (2)
Stopper screw
Tension roller cap
Gap
O
X
Floating
X
Curling
Guide roller (2) upper flange

5-19. GUIDE ROLLER (1) (S SIDE) HEIGHT ADJUSTMENT

(Refer to the following figure.)

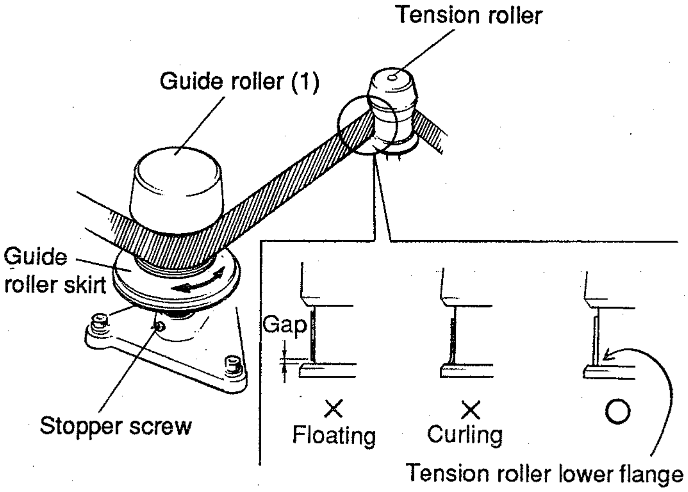
1) Play back the tape, and adjust the guide roller (1) height so that neither float nor curl is observed at the entry point as the tape passes over the lower flange of the tension roller.

Adjusting method:

· Loosen the screw, and turn the guide roller skirt.

Turn clockwise viewing from the top - to lower.
Turn counterclockwise viewing from the top - to raise.

2) Fasten the screw, and check the height once again.
3) Push up the tape between guide roller (1) and tension roller by flange. In this time the tape is floating from lower flange of tension roller. Check the tape on lower flange of tension roller does not float, when you take finger off the tape.


Tension roller
Guide roller (1)
Guide roller skirt
Stopper screw
Gap
X
Floating
X
Curling
O
Tension roller lower flange

5-20. TENSION ROLLER (T SIDE) HEIGHT ADJUSTMENT

(Refer to the following figure.)

Measuring instrument

Torque driver bit set
Torque driver (12 kg·cm)

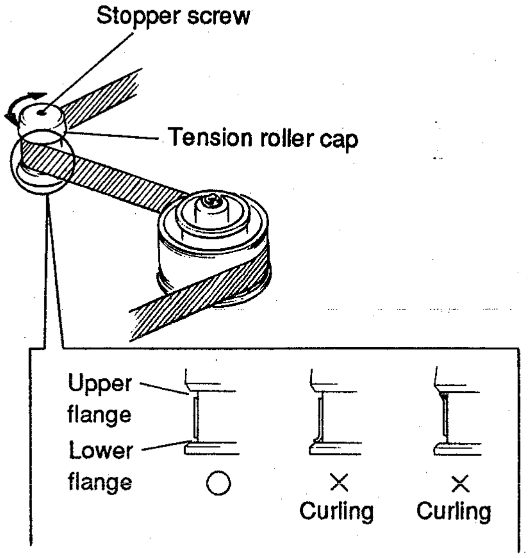
1) Play back the tape and adjust the tension roller height so that neither float nor curl is observed at the entry point as the tape passes over the upper and lower flange of tension roller.
(Set so that the tape runs at the roller center.)

Adjusting method:

- Loosen the screw and turn the tension roller cap.

Turn clockwise viewing from the top - to lower.
Turn counterclockwise viewing from the top - to raise.

2) Fasten the screw at 4kg·cm using the torque driver, and check the height once again.


Stopper screw
Tension roller cap
Upper flange
Lower flange
○
×
Curling
×
Curling

Tension roller

5-21. GUIDE ROLLER (1) (T SIDE) HEIGHT ADJUSTMENT

(Refer to the following figure.)

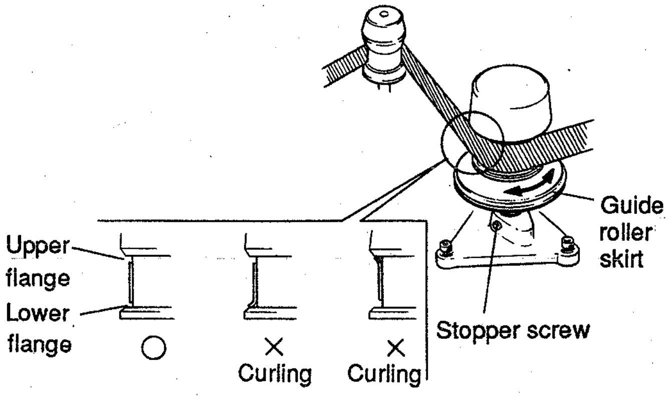
1) Play back the tape and adjust the guide roller (1) height so that no curl is observed at the entry point as the tape passes over the upper and lower of guide roller (1). (Set so that the tape runs at the roller center.)

Adjusting method:

- Loosen the screw and turn the guide roller skirt.

Turn clockwise viewing from the top - to lower.
Turn counterclockwise viewing from the top - to raise.

2) Fasten the screw and check the height once again.


Upper flange
Lower flange
○
×
Curling
×
Curling
Guide roller skirt
Stopper screw

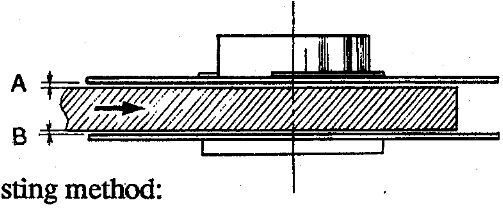
Guide roller (1)

5-22. REEL TABLE HEIGHT ADJUSTMENT (APPLICABLE TO BOTH S SIDE AND T SIDE)

(Refer to the following figure.)

Measuring instrument
Torque driver bit set
Torque driver (26 kg·cm)

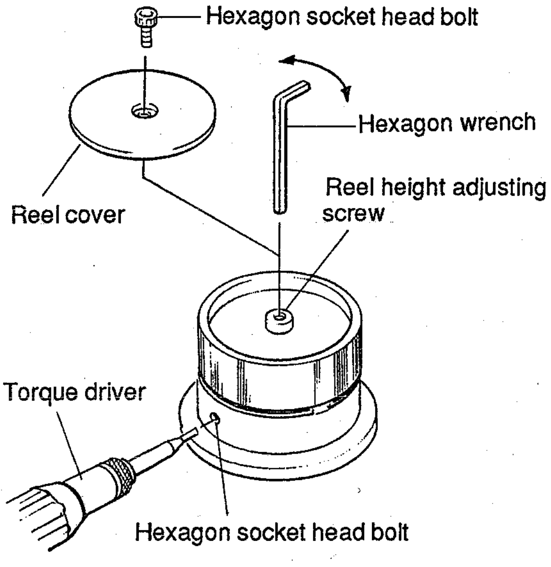
1) Set a 10-inch reel, and slowly roll the tape round the reel with the shuttle lever. Adjust so that clearances A and B becomes equal at this time.



Adjusting method:

- Remove the hexagon socket head bolt to take out the reel cover.
- Loosen the hexagon socket head bolt fixing the reel table until the resistance becomes light.
- Turn the adjusting screw to adjust the height.

Turn clockwise viewing from the top - to raise.
Turn counterclockwise viewing from the top
- to lower.


Hexagon socket head bolt
Hexagon wrench
Reel height adjusting screw
Reel cover
Torque driver
Hexagon socket head bolt

The height change is 0.7mm/REV.

- Fasten the hexagon socket head bolt fixing the reel table at 18kg·cm using the torque driver.
- Set the reel and check the height once again.

2) After completion of the height adjustment, set a 14-inch reel and slowly wind the tape with the shuttle lever. Then, check that the tape does not rub the upper and lower sides of the reel flange.

5-23. SHIFT ROLLER HEIGHT ADJUSTMENT

(Refer to the following figure.)

Measuring instrument
Torque driver bit set
Torque driver (12 kg·cm)

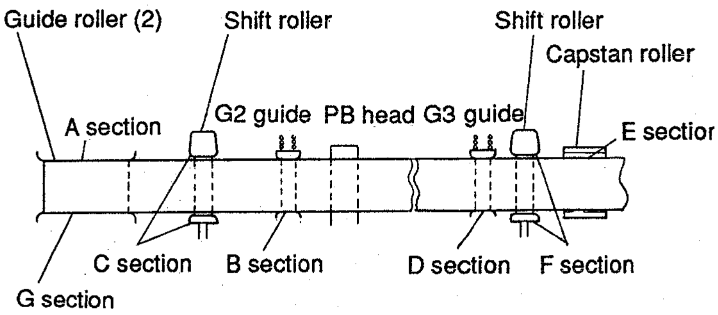
Check and adjust the shift roller height so that it satisfied the following.

S side

1) No curl shoud be observed on guide roller (2) opening upper section (A) when the tape is transported reversely with the shuttle and slow wind.
2) Neither float nor curl should be observed on the G2 guide lower section (B) when the tape is transported forward with the shuttle.
3) Check that no curl is observed on the shift roller upper and lower flanges (C) by playing and stopping the tape.
4) Check that the clearance is observed on the lower flange (G) of the guide roller (2) by rewinding the tape.

T side

1) Neither float nor curl should be observed on the G3 guide lower section (D) when the tape is transported reversely with the shuttle lever.
2) The upward and downward fluctuation of the tape on capstan roller (E) must be less than 0.5 mm when the tape is transported forward and reversely with the shuttle.
3) No curl is observed on the shift roller upper and lower flanges (F) at the moment of stop after palyback.

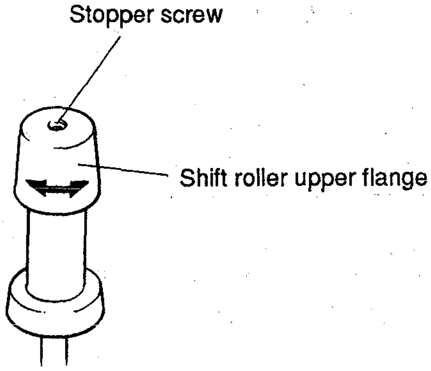

Guide roller (2)
Shift roller
Shift roller
Capstan roller
A section
G2 guide
PB head
G3 guide
E sectior
C section
B section
D section
F section
G section

Adjusting method:

- Loosen the screw and turn the shift roller upper flange.

[Turn clockwise viewing from the top - to lower.
Turn counterclockwise viewing from the top - to raise.]

Fasten the screw at 4kg·cm using the torque driver and check the height once again.



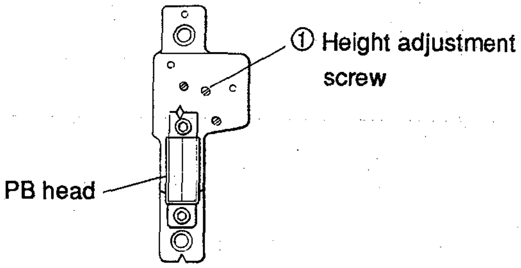
5-24. ROUGH HEIGHT ADJUSTMENT

5-24-1. PB head rough height adjustment

(Refer to the following figure.)

Measuring instrument
Oscilloscope
AR3348-1 TRACKING tape

1) Connect the CN191 connector to CN1 of the PB head.
2) Play back the 15 to 30 minutes section of the AR3348-1 TRACKING tape.
3) Turn the adjusting screw ① (refer to Note 1) so that the TP1 output waveform amplitude of CH4 on the DET-1 board becomes maximum.

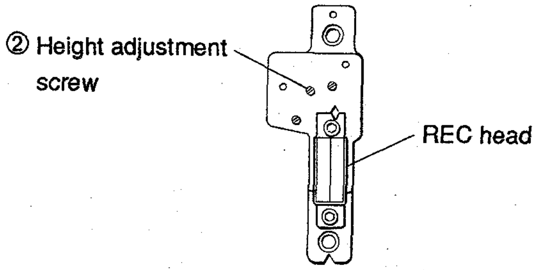


5-24-2. AD/REC and SYNC/REC heads rough height adjustment

(Refer to the following figure.)

Measuring instrument
Oscilloscope
AR3348-1 TRACKING tape

1) Connect the CN191 connector to CN1 of the REC head.
2) Play back the 15 to 30 minutes section of the AR3348-1 TRACKING tape.
3) Turn the adjusting screw ② so that the TP1 output waveform amplitude of CH5 on the DET-1 board becomes maximum.



5-25. CONTACT CHECK

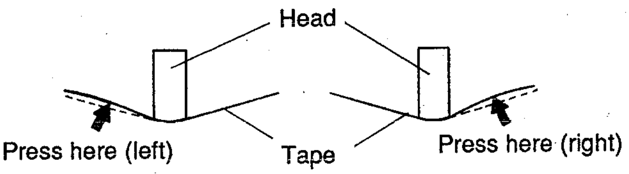
5-25-1. PB head contact check

(Refer to the following figure.)

Measuring instrument
Oscilloscope
AR3348-1 TRACKING tape

1) Connect the CN191 connector to CN1 of the PB head.
2) Play back the 15 to 30 minutes section of the AR3348-1 TRACKING tape.
3) Observing the TP1 output waveform of CH4 on the DET-1 board, gently press the tape on the right and left of the head respectively with your finger to check that the output is within the specification.

Specification : The output waveform amplitude should not increase.



5-25-2. AD/REC and SYNC/REC heads contact check

(Refer to the above figure.)

Measuring instrument
Oscilloscope
AR3348-1 TRACKING tape

1) Connect the CN191 connector to CN1 of the REC head.
2) Play back the 15 to 30 minutes section of the AR3348-1 TRACKING tape.
3) Observing the TP1 output waveform of CH5 on the DET-1 board, gently press the tape on the right and left of the head respectively with your finger to check that the output is within the specification.

Specification : The output waveform amplitude should not increase.

5-26. AZIMUTH ADJUSTMENT AND CHECK

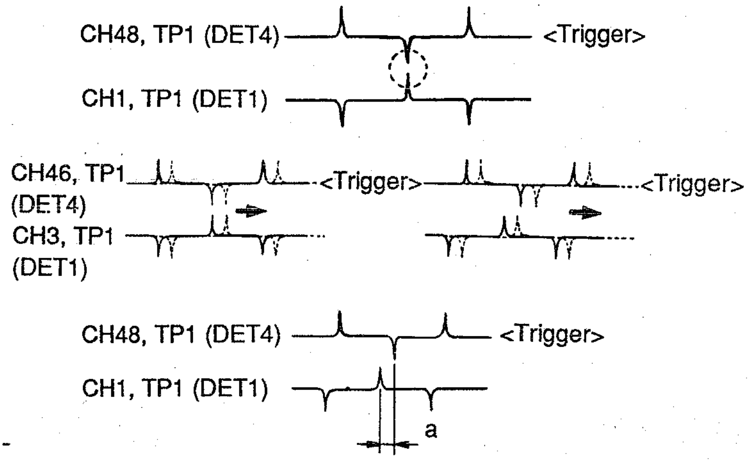
5-26-1. PB head azimuth adjustment

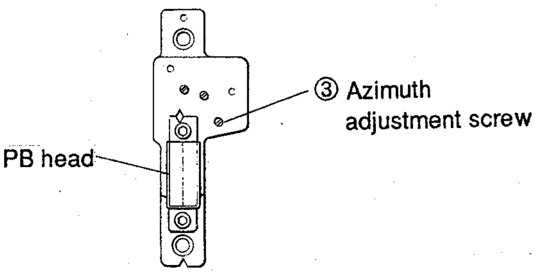
(Refer to the following figure.)

Measuring instrument
Oscilloscope
AR3348-1 TRACKING tape

1) Connect the CN191 and CN192 connectors to CN1 and CN2 of the PB head.
2) Play back the 15 to 30 minutes section of the AR3348-1 TRACKING tape.
3) While observing the TP1 output waveforms of CH1 on the DET-1 board and CH48 on the DET-4 board respectively (refer to Note 2), set the waveform phase to the maximum output position using the adjusting screw (Note 1) ③.
4) Check that the TP1 output waveforms of CH3 on the DET-1 board and CH46 on the DET-4 board (Note 2) sweep on the same phase.
   If not, return to procedure 2). Shift the waveform phase by 1 wavelength.
5) While observing the TP1 output waveforms of CH1 on the DET-1 board and CH48 on the DET-4 board (Note 2), adjust with the adjusting screw (Note 1) ③ so that they become within the specifications.
6) Apply screw-lock compound to the adjustment screw ③.

Reference : a is within ±5μs.





Note 1: Finish adjustment while the adjusting screw is turned counterclockwise.

Note 2: Perform these adjustments while the oscilloscope is on the inverted phase position.

5-26-2. AD/REC and SYNC/REC heads azimuth adjustment

Measuring instruments

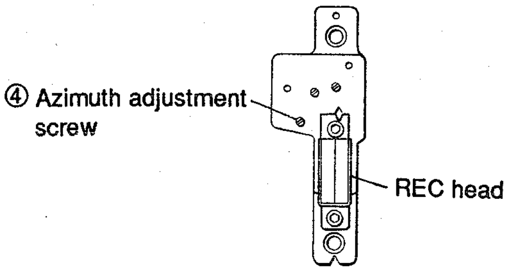
- Oscilloscope
- Tracking tape, AR3348-1
- Extension cable (Head), (J-6223-280-A); use 2 pieces.

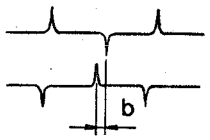
Adjustment procedure

1) Extend each harness (CN191 and CN192) that is connected to the connectors CN1 and CN2 on the PB head by using the extension cables.
2) Mount each harness (CN191 and CN192) onto the connectors CN1 and CN2 on the AD/REC head or SYNC/REC head to be adjusted.
3) Play back the 15 to 30 minutes section of the AR3348-1 TRACKING tape.
4) While observing the TP1 output waveforms of CH1 on the DET-1 board and CH48 on the DET-4 board (Note 2), set the waveform phase to the maximum output position using the adjusting screw (Note 1) ④so that they become within the specifications.

Reference : b is within ±5µs.

5) Check that the TP1 waveforms of CH3 on the DET-1 board and CH46 on the DET-4 board sweep on the same phase.
6) Apply screw-lock compound to the adjustment screw ④.





Note 1: Finish adjustment while the adjusting screw is turned counterclockwise.

Note 2: Perform these adjustments while the oscilloscope is on the inverted phase position.

5-27. HEAD DISTANCE ADJUSTMENT AND CHECK

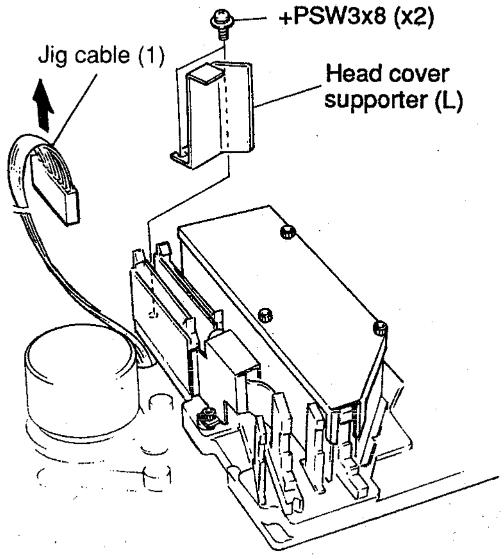
Preparation

Note: Perform the following procedure only when the jig cable (1) (J-6222-510-A) is used.
When the extension cable (Head) (J-6223-280-A) is used, the following procedure is not required.

Attaching the jig cable (1)

(Refer to the following figure.)

1) Remove the two +PSW3x8 screws to take out the head cover supporter (L).
2) Unlock and pull up the chassis.
3) Remove the seven +PSW3x8 screws to take out the REC amplifier shield plate.
4) Disconnect connector CN105 and replace it with the jig cable (1).
5) Pass the jig cable (1) through the chassis upper section and mount the head cover supporter (L) with the two +PSW3x8 screws.

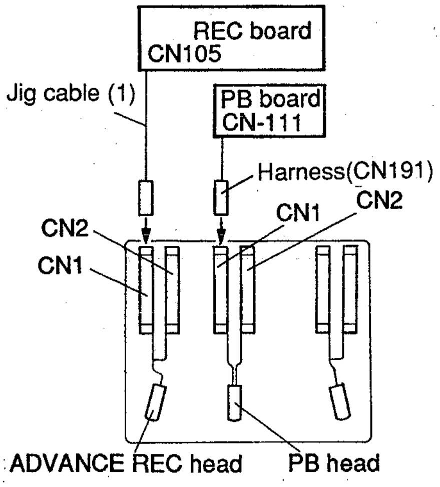


5-27-1. ADVANCE REC head to PB head distance adjustment

Measuring instrument
Oscilloscope
Jig cable (1) (J-6222-510-A)
or
Extension cable (Head), (J-6223-280-A); use 2 pieces.

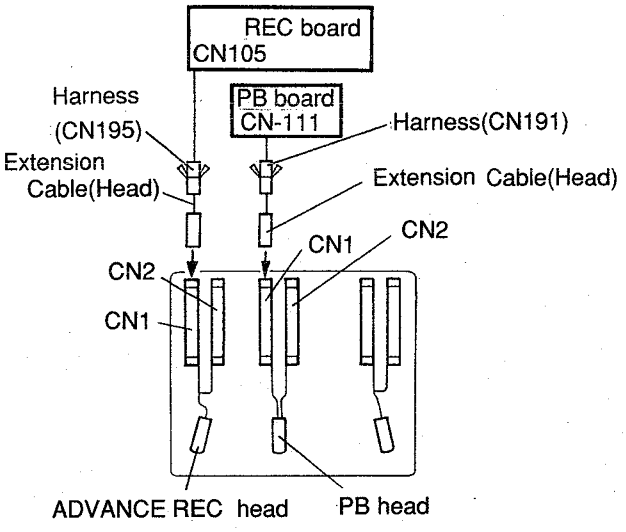
Connection

When using the jig cable (1):


REC board
CN105
Jig cable (1)
PB board
CN-111
Harness(CN191)
CN1
CN2
CN2
CN1
ADVANCE REC head
PB head

When using the Extension cable (Head):

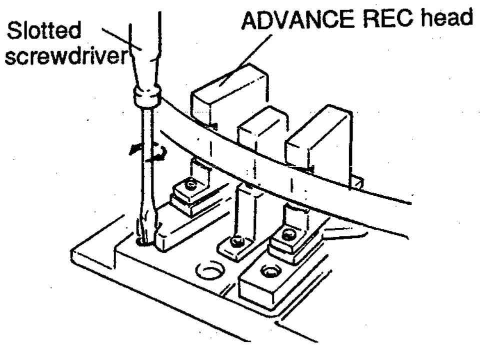
1) Extend the harness (CN195) that is connected to the connector (CN1) on the ADVANCE REC head by using the extension cable (Head).
2) Extend the harness (CN191) that is connected to the connector CN1 on the PB head by using the extension cable (Head).


REC board
CN105
Harness
(CN195)
Extension
Cable(Head)
PB board
CN-111
Harness(CN191)
Extension Cable(Head)
CN1
CN2
CN2
CN1
ADVANCE REC head
PB head

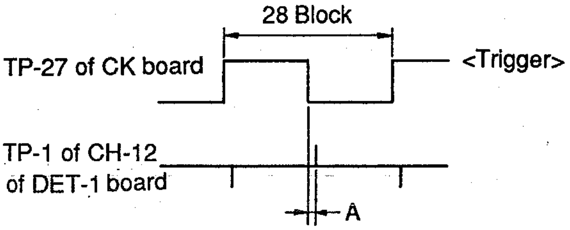
Adjustment Procedure

1) Set FS at 48kHz and set the SW011 bit switch 5 on the CK board to ON.
2) Load a blank tape and record the CH12 track in ADVANCE REC mode.
3) Loosen the two screws (Cap M2.6) fixing the ADVANCE REC head assembly.
4) Move the ADVANCE REC head assembly right and left with the slotted screwdriver so as to satisfy the specification.
After the adjustment, fasten the loosened screws with the torque driver. (Fastening torque: 6kg.cm)

Adjusting method


Slotted
screwdriver
ADVANCE REC head

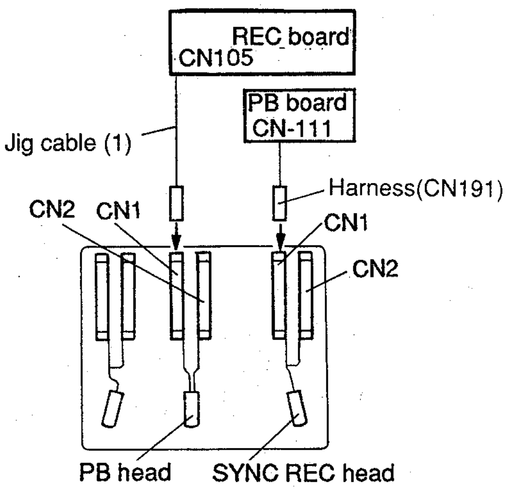
Adjustment reference


28 Block
TP-27 of CK board
<Trigger>
TP-1 of CH-12
of DET-1 board
A

Reference : A is within ±250µs.

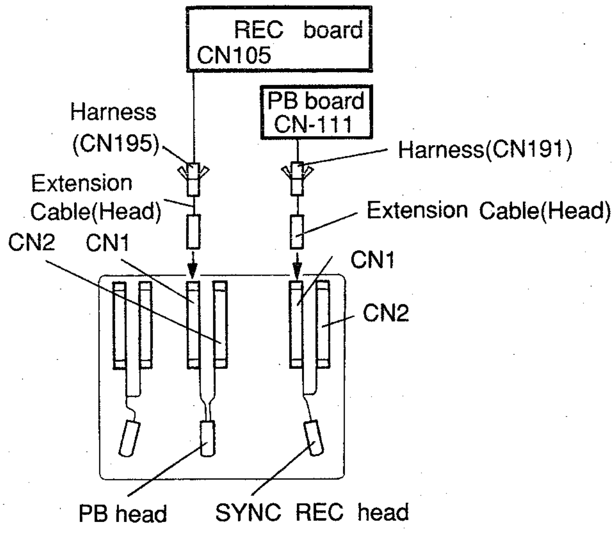
5-27-2. PB head to SYNC REC head distance adjustment

Measuring instrument
Oscilloscope
Jig cable (1) (J-6222-510-A)
or
Extension cable (Head), (J-6223-280-A);
use 2 pieces.


REC board
CN105
PB board
CN-111
Jig cable (1)
Harness(CN191)
CN2
CN1
CN1
CN2
PB head
SYNC REC head

When using the Extension cable (Head):

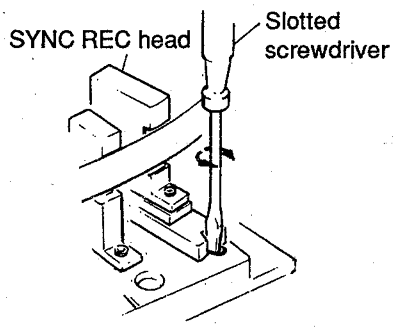
1) Extend the harness (CN195) that is connected to the connector (CN1) on the ADVANCE REC head by using the extension cable (Head).
2) Extend the harness (CN191) that is connected to the connector CN1 on the PB head by using the extension cable (Head).


REC board
CN105
PB board
CN-111
Harness
(CN195)
Harness(CN191)
Extension
Cable(Head)
Extension Cable(Head)
CN2
CN1
CN1
CN2
PB head
SYNC REC head

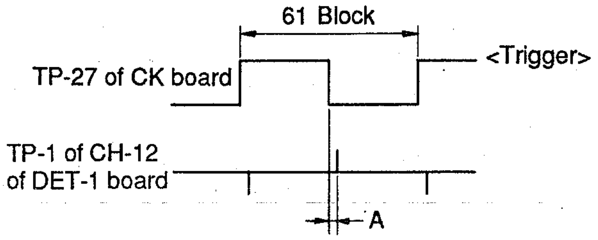
Adjustment Procedure

1) Set FS at 48kHz and set the SW011 bit switch 6 on the CK board to ON.
2) Load a blank tape and record the CH12 track in ADVANCE REC mode.
3) Loosen the two screws (Cap M2.6) fixing the SYNC REC head assembly.
4) Move the SYNC REC head assembly right and left with the slotted screwdriver so as to satisfy the specification.
   After the adjustment, fasten the loosened screws with the torque driver. (Fastening torque: 6kg.cm)

Adjusting method


SYNC REC head
Slotted
screwdriver

Adjustment reference



Reference : A is within ±25μs.

5-28. HEAD HEIGHT ADJUSTMENT

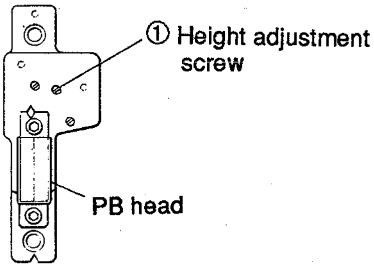
5-28-1. PB head height adjustment

(Refer to the following figure.)

Measuring instrument

RMS voltmeter (HP400FL)
Oscilloscope
AR3348-1 TRACKING tape

1) Connect the CN191 and CN192 connectors to CN1 and CN2 of the PB head.
2) Play back the 15 to 30 minutes section of the AR3348-1 TRACKING tape.
3) While observing on the RMS voltmeter that the TP1 output level of CH4 on the DET-1 board becomes maximum, turn the adjusting screw (Note 1)①.



4) While observing the TP1 output waveforms of CH1 on the DET-1 board and CH48 on the DET-4 board, check the azimuth. If it is not correct. proceed according to the azimuth adjusting procedure.

Note 1: Finish adjustment while the adjusting screw is turned counterclockwise.

5-28-2. AD/REC head and SYNC/REC head height adjustment

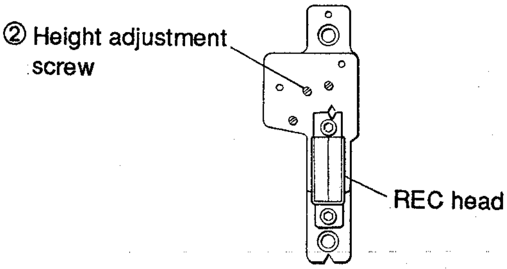
(Refer to the following figure.)

Measuring instrument

RMS voltmeter (HP-400FL)
Oscilloscope
AR3348-1 TRACKING tape
Extension cable (Head), (J-6223-280-A):
use 2 pieces

Adjustment Procedure

1) Extend each harness (CN191 and CN192) that is connected to the connectors CN1 and CN2 on the PB head by using the extension cables.
2) Connect the extended harness (CN191 and CN192) to the connectors CN1 and CN2 on the ADVANCE REC head to be adjusted.
3) Play back the 15 to 30 minutes section of the AR 3348-1 TRACKING tape.
4) While observing on the RMS voltmeter that the TP1 output level of CH5 on the DET-1 board becomes maximum,turn the adjusting screw (Note 1) ②.



5) While observing the TP1 output waveforms of CH1 on the DET-1 board and CH48 on the DET-4 board, check the azimuth. If it is not correct. proceed according to the azimuth adjusting procedure.

Note 1: Finish adjustment while the adjusting screw is turned counterclockwise.

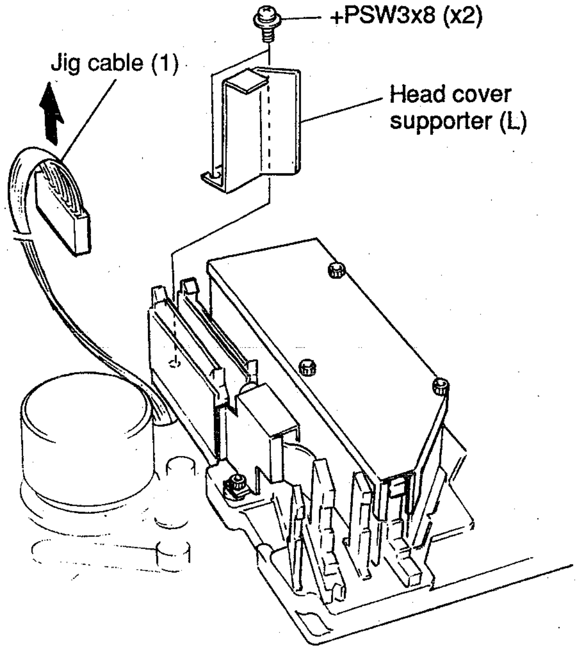
5-29. HEAD HEIGHT CHECK

Preparation

Note: Perform the following procedure only when the jig cable (1) (J-6222-510-A) is used. When the extension cable (Head) (J-6223-280-A) is used, the following procedure is not required.

Attaching the jig cable (1)
(Refer to the following figure.)

1) Remove the two +PSW3×8 screws to take out the head cover supporter (L).
2) Unlock and pull up the chassis.
3) Remove the seven +PSW3×8 screws to take out the REC amplifier shield plate.
4) Remove connector CN105 and replace it with the cable device (1).
5) Pass the cable device (1) through the chassis upper section and mount the head cover supporter (L) with the two +PSW3×8 screws.


+PSW3x8 (x2)
Jig cable (1)
Head cover supporter (L)

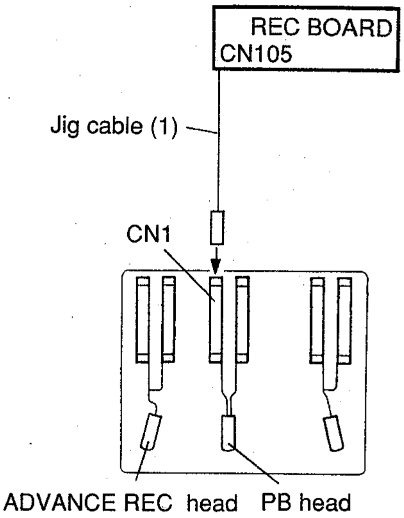
5-29-1. PB head height check

(Refer to the following figure.)

Measuring instrument
Jig cable (1) (J-6222-510-A)
or
Extension cable (Head), (J-6223-280-A);
use 2 pieces.
Microscope for head height measurement

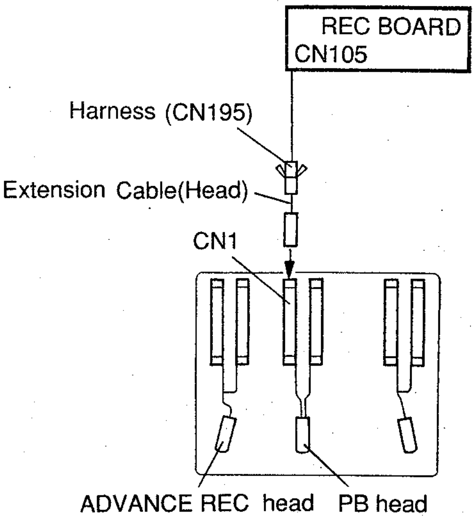
Connection
When using the jig cable (1):

Connect the tool cable (1) to the connector CN1 on the PB head.


REC BOARD
CN105
Jig cable (1)
CN1
ADVANCE REC head
PB head

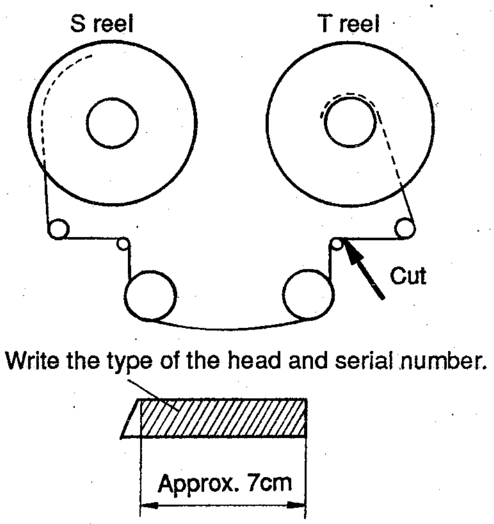
When using the extension cable (Head):

1) Extend the harness (CN195) that is connected to the connector (CN1) on the ADVANCE REC head by using the extension cable (Head).
2) Connect the extended harness (CN195) to the connector CN1 on the PB head.


REC BOARD
CN105
Harness (CN195)
Extension Cable(Head)
CN1
ADVANCE REC head
PB head

Procedure

1) Set the SW011 bit switch 2 on the CK board to ON.
2) Load a blank tape and record CH25 in ADVANCE REC mode. (for about 20 seconds)
3) Cut off the recorded tape.


S reel
T reel
Cut
Write the type of the head and serial number.
Approx. 7cm

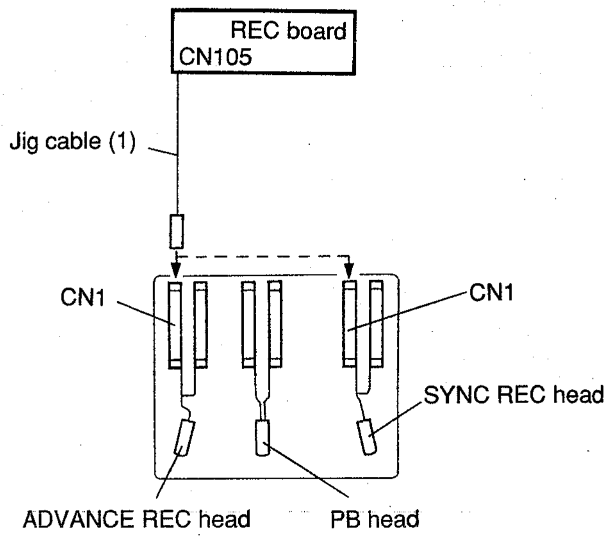
4) Cut off the two tape samples, and uniformly apply liquid developer to them.
5) As for one of the two tapes, measure the distance from the tape lower edge to the Channel 25 lower edge on the optical microscope.
6) Check that the measurement is within the adjustment range as shown in the head data table.

5-29-2. AD/REC head and SYNC/REC head height check

Measuring instrument
Jig cable (1) (J-6222-510-A)
or
Extension cable (Head), (J-6223-280-A);
use 2 pieces.
Microscope for head height measurement

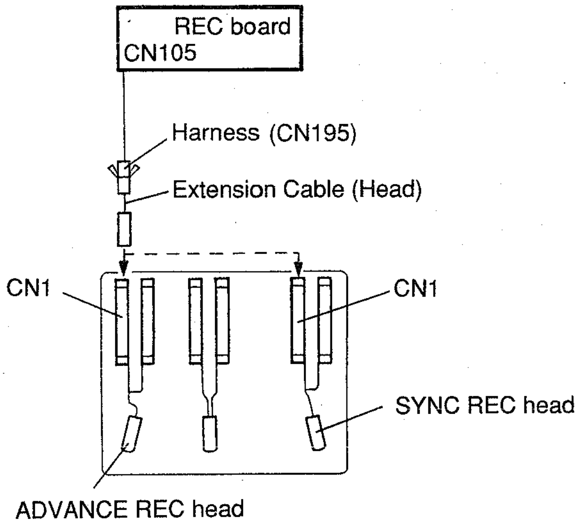
Connection
When using the jig cable (1):

Connect the jig cable (1) to the connector CN1 on the ADVANCE REC head or SYNC REC head to be adjusted.


REC board
CN105
Jig cable (1)
CN1
CN1
SYNC REC head
ADVANCE REC head
PB head

When using the extension cable (Head):

1) Extend the harness (CN195) that is connected to the connector (CN1) on the ADVANCE REC head by using the extension cable (Head).
2) Connect the extended harness (CN195) to the connector CN1 on the ADVANCE REC head or SYNC REC head to be adjusted.



Procedure

1) Set the SW011 bit switch 2 on the CK board to ON.
2) Load a blank tape, and record CH25 in ADVANCE REC mode. (for about 20 seconds)
3) Cut off the recorded tape.
4) Cut off the two tape samples, and uniformly apply liquid developer to them.
5) As for one of the two tape samples, measure the distance from the tape lower edge to the Channel 25 lower edge on the optical microscope.
6) Check that the measurement is within the adjustment range as shown in the head data table.

5-30. FRONT DOOR (L) ASSEMBLY AND FRONT DOOR (R) ASSEMBLY ADJUSTMENT

(Refer to the following figure.)

1) Loosen the four attaching screws (F, G, H and I in Fig-3) on the ball catch adjustment plate. Adjust the hinge plates (L) and (R) so that clearance A shown in Fig-1 becomes uniformly about 2mm width from top to bottom without any step on the upper surfaces of the front doors (L) and (R) when they are closed. Loosen screws D and E shown in Fig-2 and slant the hinge plate with E as fulcrum for adjustment.
2) After the hinge plate adjustment, close the front door (L) and fasten screw F shown in Fig-3. Next, open the front door (L), close the front door (R) and fasten screws G and H. Finally, open the front door (R) and fasten screw I.

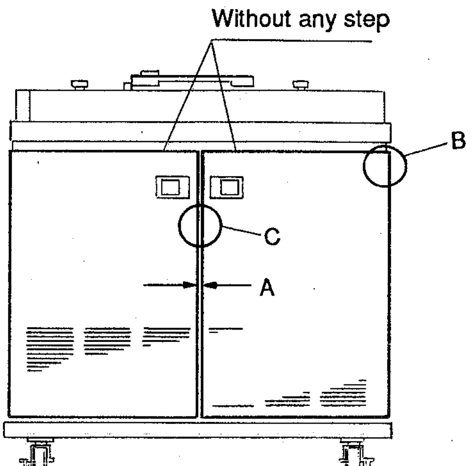


Fig-1

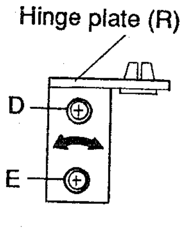


Fig-2 Detailed drawing of B section (The front door (R) is open.)

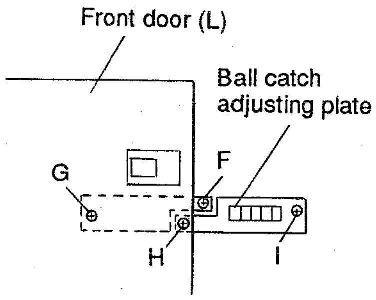


Fig-3 Detailed drawing of C section (The front door (R) is open.)

5-31. MECHANICAL SIDE PANEL (L) AND MECHANICAL SIDE PANEL (R) ADJUSTMENT

(Refer to the following figure.)

1) Open the mechanical chassis and the control panel as shown in Fig-4 and temporarily fasten the screws on the mechanical side panels (L) and (R) from the inside.
2) Close the control panel to secure with the screw, and adjust the mechanical side panels so that no step is observed between the control panel and the mechanical side panels (the dotted section in Fig-5). Then, fasten the screws B, C, D, E and F shown in Fig-6.
3) Open the control panel again and fasten screw A shown in Fig-6.

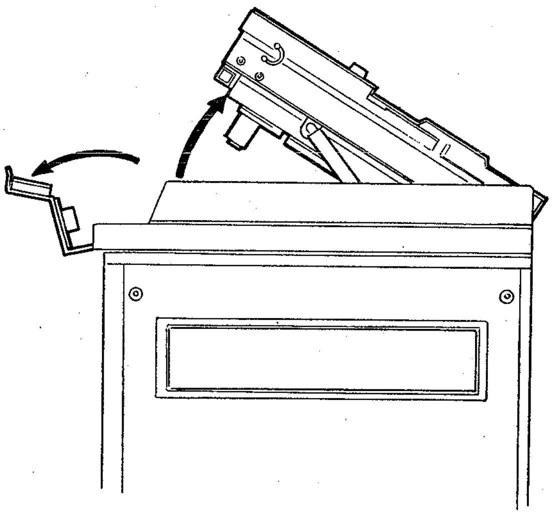


Fig-4

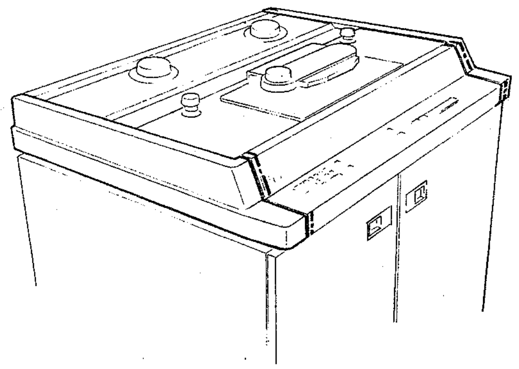


Fig-5

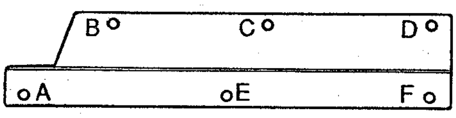


Fig-6

SECTION 6
ELECTRICAL ADJUSTMENT

Note: For the following adjustments on the PCM-3348 with **Serial No. 20001 and higher**, refer to "Section 2 Electrical Adjustment" of the DABK-3341 Maintenance Manual.

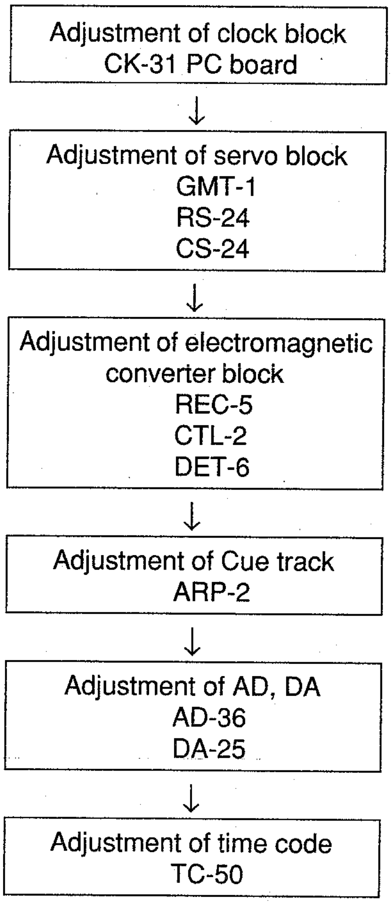
- RS-24 Board Adjustment
- CS-24 Board Adjustment
- ADJUSTMENT OF THE TIME CODE (TC-68 Board Adjustment)

6-1 OUTLINE

The electrical adjustments required for repair and maintenance of PC boards are described in this section.
Proceed with the adjustments in the order shown on the right, provided that all the previous adjustment items are normally functioning. When a trouble is likely attributable to plural items, adjust and confirm the previous and next items as well as the item in question. Also, when replacing the parts and PC boards mentioned in "List of PC boards (parts) which need electrical adjustment" on page 6-2, adjustment of relating PC boards may be necessary.

This section mainly describes the adjustments of internal switches and controls which are necessary to satisfy the specifications. Concerning the external switches, controls and operation, refer to the separately supplied operation manual.

Procedure of electrical adjustment


Adjustment of clock block
CK-31 PC board
Adjustment of servo block
GMT-1
RS-24
CS-24
Adjustment of electromagnetic converter block
REC-5
CTL-2
DET-6
Adjustment of Cue track
ARP-2
Adjustment of AD, DA
AD-36
DA-25
Adjustment of time code
TC-50

List of PC boards (parts) which need electrical adjustment

Part and PC board to replace	PC board which needs electrical adjustment
Tension regulator assembly	RS-24 board
Reel motor	
RLD-1 board	
PWT-1 board	
PTN-1 board	
RS-24 board	
Shuttle	RS-24 board [Adjustment of shuttle offset Adjustment of shuttle AD only]
Tape guide	RS-24 board [TL, TM SL, SM tension adjustment only]
SYNC.REC head	RS-24 board [TL, TM, SL, SM tension adjustment only] REC-5 board ARP-2 board
PB head	RS-24 board [TL, TM, SL, SM tension adjustment only] DET-6 board CTL-6 board ARP-2 board
PRE-1 board	
ADV-REC head	RS-24 board [TL, TM, SL, SM tension adjustment only] REC-5 board ARP-2 board
KY-142 board	ARP-2 board (meter level adjustment only)
ARP-2 board	ARP-2 board
Capstan motor	CS-24 board
CS-24 board	
CK-31 board	CK-31 board
CTL-2 board	CTL-2 board
REC-5 board	REC-5 board
DET-6 board	DET-6 board
AD-36 board	AD-36 board
DA-25 board	DA-25 board

List of PC boards which do not need electrical adjustment
(in alphabetical order)

PC Board

- ASW-8
- ASW-9
- CN-247
- CN-250
- CRF-1
- DIO-5
- DR-70
- DR-71
- ED-19 or ED-26
- ED-20 or ED-27
- FL-60
- GMT-1
- JK-23
- JK-25
- KC-17
- KY-140
- KY-141
- KY-142
- LD-24
- MAE-1
- MB-194
- MB-195
- MB-196
- MC-33
- PMT-1
- RG-23
- RM-59
- SKS-3 or SKS-4
- SPU-1
- SW-297
- SW-298
- SW-311
- SY-128
- TRC-1
- VR-75

List of measuring instrument

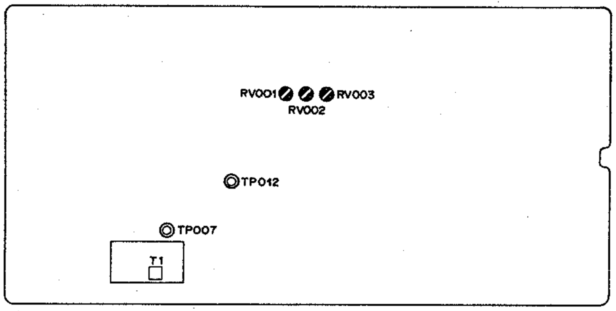
Measuring instrument	Specifications (minimum)	Applicable PC board	Model
Oscilloscope	DC to 100 MHz 2 phenomena Sensitivity 5 mV/din or more	AD-36, ARP-2, CK-31, CS-24, CTL-2, DA-25, DET-6, GMT-1, REC-5, RS-24, TC-50 (or TC-68)	TEKTRONICS 2445A 465B
Digital voltmeter	DC 4-1/2 digits or more	RS-24	ADVANTEST TR-6855
Wow/flutter meter		CS-24	MEGRO MK-615
Frequency counter	6 digits or more	ARP-2, CK-31, RS-24	HP 5315A
DC power source	±10 V or more	ARP-2, RS-24	
Audio signal generator/ audio distortion analyzer	0.001 % THD 10 Hz to 100 kHz Balance output Balance input	AD-36, DA-25, ARP-2	SOUND TECHNOLOGY ST-1710A or TEKTRONICS SG505, AA501 (SG5010), (AA5001)
AC voltmeter	Minimum scale 0.1 dB (dB linear scale)	REC-5	HP 400FL or HP3400A (with option C30)

6-2 ADJUSTMENT OF CLOCK BLOCK

6-2-1. Adjustment of the CK-31 board

When the CK-31 board is repaired or replaced, the following items shall be adjusted.

Adjusting points



CK-31 board - component side
(No. 1-627-113-11/-12)

1. Video PLL free-run frequency adjustment

Adjust the video PLL free-run frequency when VCXO peripheral parts (ICE5, E7, X001 - 003, D015 - 017, C052 - 057, etc.) and parts of the free-run frequency adjusting section (RV001 - 003, Q008 - 010, etc.) are replaced or when any abnormality occurs during operation of the video PLL (lock range, etc.).

Measuring instrument
Frequency counter HP-5315A or equivalent
Extension board (A)

Setting of switch and control
SYNC CLOCK : VIDEO
VIDEO SYNC IN : disconnected (no signal)

Adjusting points
⊘ RV001, 002, 003

Adjusting procedure

1) Connect the frequency counter to test point TP012.
2) Make sure that VIDEO of the CK PC board level indicator is turned off.
3) Adjust RV001, 002 and 003 so that the frequency of TP012 becomes as shown below at the respective frequency.

Sampling freq.	TP012 freq.	Adjusting point
44.056 kHz	4405.500 kHz·20 Hz	⊘ RV001
44.1 kHz	4410.000 kHz·20 Hz	⊘ RV002
48.0 kHz	4800.000 kHz·20 Hz	⊘ RV003

2. Variable pitch PLL adjustment

Adjust the variable pitch PLL when VCO parts of the variable pitch PLL in the shield case, or the variable pitch range and external sync range are out of specification.

Measuring instrument
Oscilloscope
Extension board (A)

Setting of switch and control
SYNC CLOCK : INTERNAL
SAMPLING FREQUENCY : 48.0 kHz
Variable pitch : ±0 %

Adjusting point
Transformer T1

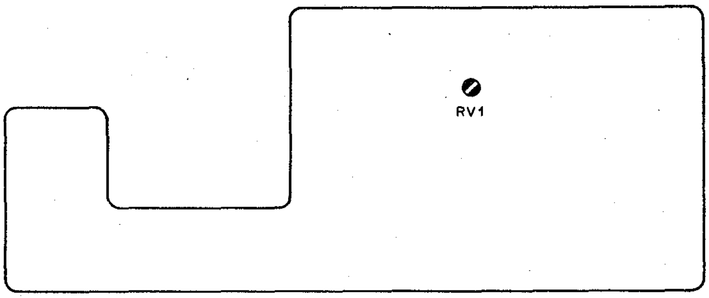
Adjusting procedure
1) Set the oscilloscope to 1 V/div DC coupling.
2) Measure the DC voltage of TP007 with the oscilloscope.
3) Adjust the core of oscillation transformer T1 in the shield case so that the DC voltage of TP007 becomes 4.5±0.1 V.

6-3. ADJUSTMENT OF THE SERVO BLOCK

6-3-1. GMT-1 board adjustment

Perform this adjustment when the reel motor or the GMT-1 board is replaced.

Adjusting point



GMT-1 board component side
(No.1-627-101-11)

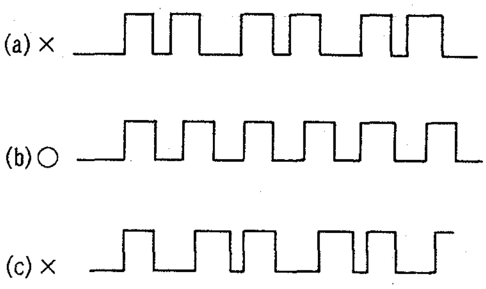
Measuring instrument
Oscilloscope
Servo extension board

Adjusting point
⊘ RV1

Adjustment procedure

1) Extend the RLD-1 board with the servo extension board.
2) Connect Channel 1 of the probe of the oscilloscope to TP101 and Channel 2 to TP103.
3) Load a tape and set the unit in FF or REW mode. (Use a tape which can be damaged.)
4) Adjust RV1 preliminarily so that the duty ratio of TP101 waveform becomes approximately 50 %.
5) Finely adjust RV1 so that the interval of the TP103 waveform becomes even as in (b) of the following figure.

The above procedure is for adjusting the GMT-1 board of the take-up side. For GMT-1 of the supply side, perform adjustment on TP201 and TP203 instead of TP101 and TP103 respectively.



TP103 (TP203) waveform

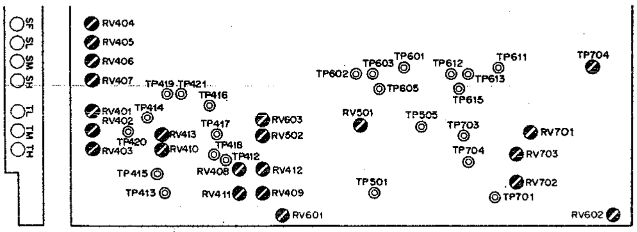
6-3-2. RS-24 board adjustment

Electrical adjustment of the reel servo block is performed on the RS-24 board.
Perform this adjustment when reel motor, shuttle volume and potentiometer are replaced, or the electrical characteristics of the reel servo are out of specifications.

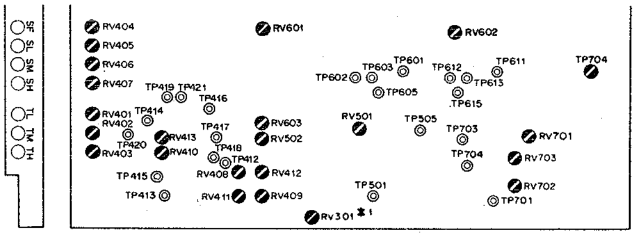
Items to be adjusted when parts (PC board) are replaced

Parts (PC board) to replace	Necessary adjustment items
Shuttle assembly (or shuttle volume, shuttle dial)	1) Mechanical adjustment 5-8. "Mounting and adjustment of shuttle assembly when it is replaced" 2) 6-3-1. 1. "Shuttle offset adjustment" 3) 6-3-2. 2. "Shuttle AD adjustment"
Reel motor	1) Refer to mechanical adjustments 5-1. to 5-22. Adjust the reel motor assembly if necessary. 2) 6-3-2. 5. "Tension servo gain adjustment" 3) 6-3-2. 6. "High tension adjustment" 4) 6-3-2. 7. "Forward tension adjustment" 5) 6-3-2. 8. "Low and mid tension adjustment" 6) 6-3-2. 9. "Highest tape transport speed adjustment" 7) 6-3-2. 10. "Speed servo gain adjustment" 8) 6-3-2. 11. "External speed adjustment"
RLD-1 PTN-1 PWT-1	1) 6-3-2. 5. "Tension servo gain adjustment" 2) 6-3-2. 6. "High tension adjustment" 3) 6-3-2. 7. "Forward tension adjustment" 4) 6-3-2. 8. "Low and mid tension adjustment" 5) 6-3-2. 9. "Highest tape transport speed adjustment" 6) 6-3-2. 10. "External speed adjustment"

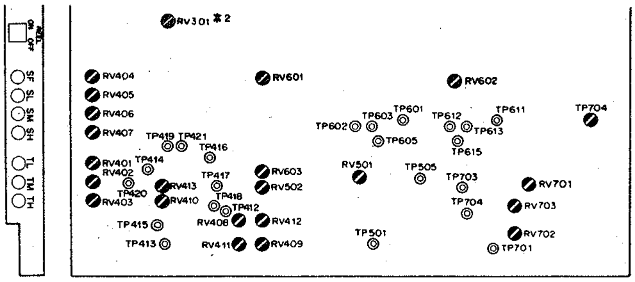
Adjusting points


SF
SL
SM
SH
TL
TM
TH
RV404
RV405
RV406
RV407
TP419
TP421
TP416
RV401
RV402
TP414
TP420
RV403
RV413
RV410
TP417
TP418
TP412
RV603
RV502
RV412
RV409
RV408
RV411
TP415
TP413
RV601
TP602
TP603
TP601
TP605
TP612
TP611
TP613
TP615
TP704
RV501
TP505
TP703
TP704
RV701
RV703
RV702
TP701
TP501
RV602

RS-24 Board -Component Side-
(No. 1-627-097-11)


SF
SL
SM
SH
TL
TM
TH
RV404
RV405
RV406
RV407
RV601
RV602
TP419
TP421
TP416
RV401
RV402
TP414
TP420
RV403
RV413
RV410
TP417
TP418
TP412
RV603
RV502
RV412
RV409
RV408
RV411
TP415
TP413
TP602
TP603
TP601
TP605
TP612
TP611
TP613
TP615
TP704
RV501
TP505
TP703
TP704
RV701
RV703
RV702
TP701
TP501
RV301 *1

RS-24 Board -Component Side-
(No. 1-627-097-12, -13)
*1: Serial No. 10502, 10504, 10601 to 11100


RV301 *2
SF
SL
SM
SH
TL
TM
TH
RV404
RV405
RV406
RV407
RV601
RV602
TP419
TP421
TP416
RV401
RV402
TP414
TP420
RV403
RV413
RV410
TP417
TP418
TP412
RV603
RV502
RV412
RV409
RV408
RV411
TP415
TP413
TP602
TP603
TP601
TP605
TP612
TP611
TP613
TP615
TP704
RV501
TP505
TP703
TP704
RV701
RV703
RV702
TP701
TP501

RS-24 Board -Component Side-
(No. 1-627-097-14)
*2: Serial No. 11101 and higher

1. Shuttle offset adjustment

Measuring instrument
Oscilloscope input : DC
trigger : auto

Adjusting procedure
Set the oscilloscope to the 100 mV/div range.
Specification : TP703 voltage = 0 V ± 10 mV
Adjusting point : ⊘ RV704

2. Shuttle AD adjustment

Measuring instrument
Oscilloscope input : DC
trigger : auto

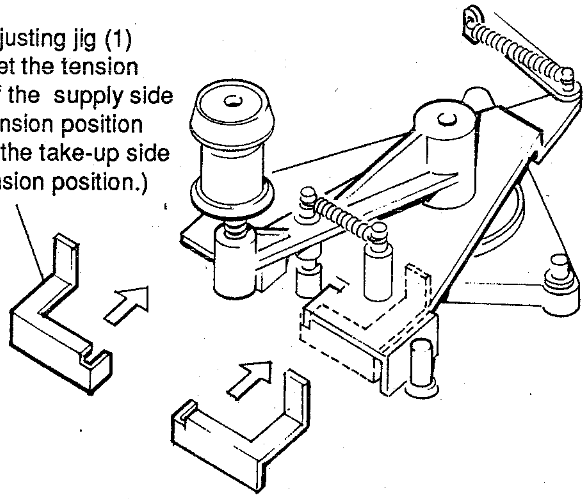
Adjusting procedure
Specification : TP704 voltage = 2.5 V ± 50 mV
Adjusting point : ⊘ RV703

3. Low, high tension detecting level adjustment
(Both supply and take-up sides)

Measuring instrument
Oscilloscope input : DC
trigger : auto
Tension adjusting jig (1)
Tension adjusting jig (2)

Adjusting procedure

1) Turn the crank wheel until the tension regulators of the take-up and supply sides reach the loading position.
2) Set the tension regulator of the take-up side to a low tension position with the tension adjusting jig (1). (Refer to the figure below.)



Tension adjusting jig (1)
(Use it to set the tension regulator of the supply side to a high tension position and that of the take-up side to a low tension position.)

Tension adjusting jig (2)
(Use it to set the tension regulator of the supply side to a high tension position and that of the take-up side to a low tension position.)

3) Turn RV408 until TP412 voltage decreases to 0 V from 5 V.
4) Set the tension regulator of the take-up side to a high tension position with the tension adjusting jig (2).
Push the tension arm until it contacts with the limiter on the right and keep it there. (Refer to the figure above.)
5) Turn RV409 until the TP413 voltage decreases to 0 V from 5 V.
6) Set the tension regulator of the supply side to a low tension position with the tension adjusting jig (2).
(Refer to the figure above.)
7) Turn RV411 until the TP417 voltage decreases to 0 V from 5 V.
8) Set the tension regulator of the supply side to a high tension position with the tension adjusting jig (1).
Push the tension arm until it contacts with the limiter on the left and keep it there. (Refer to the figure above.)

9) Turn RV412 until the TP418 voltage decreases to 0 V from 5 V.

Specifications : The TP412, 413, 417 and 418 voltages decrease to 0 V from 5 V.

Adjusting points : ⊘ RV408, 409, 411 and 412

4. Speed servo error offset adjustment

Measuring instrument

Oscilloscope input : DC
trigger : auto

Adjusting procedure

Load a tape and set the unit in stop mode.
Set the oscilloscope to the 100 mV/div range.
Specifications: TP505 voltage = 0 V ± 5 mV
Adjusting point: ⊘ RV502

5. Tension servo gain adjustment

Measuring instrument

Servo gain adjusting jig

Adjusting procedure

1) Load a 10-inch tape. Wind the tape approximately half a length in fast forward or rewind mode and set the unit in stop mode.
2) Connect the OSC OUT of the servo gain adjusting jig to TP414, CH1 to TP416 and CH2 to TP415. Set the CS/RS selector to RS-T and leave it for approximately 1 minute.
3) Turn RV410 to turn on the LED meaning servo gain OK.
4) Connect the OSC OUT of the servo gain adjusting jig to TP419, CH1 to TP421 and CH2 to TP420. Set the CS/RS selector to RS-T and leave it for approximately 1 minute.
5) Turn RV413 to turn on the LED meaning servo gain OK.

Adjusting points: ⊘ RV410 and 413

6. High tension adjustment (Refer to the figure below.)

Measuring instrument

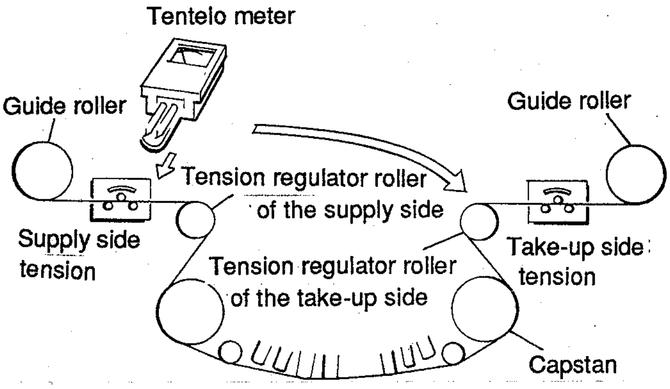
Tentelo meter

Adjusting procedure

1) Load a 14-inch tape. Wind the tape approximately half a length in fast forward or rewind mode and set the unit in stop mode.
2) Set the tentelo meter between the tension roller and guide roller of the take-up side.
3) Turn RV403 and set the tension to 200 g ± 2g.
4) Set the tentelo meter between the tension roller and guide roller of the supply side.
5) Turn RV407 and set the tension to 200 g ± 2 g.

Specifications : tension of take-up and supply sides = 200g ± 2 g (in stop mode)

Adjusting points : ⊘ RV403 and 407


Tentelo meter
Guide roller
Guide roller
Tension regulator roller of the supply side
Supply side tension
Take-up side tension
Tension regulator roller of the take-up side
Capstan

Tape tension measuring position

7. Forward tension adjustment

Measuring instrument

Tentelo meter

Adjusting procedure

1) Load a 14-inch tape. Wind the tape approximately half a length in fast forward or rewind mode and set the unit in play mode.
2) Set the tentelo meter between the tension roller and guide roller of the supply side.
3) Turn RV404 to set the tension to 150 g ± 2 g.
   Specifications : Supply side tension =
   150 g ± 2 g (in play mode)
   Adjusting point : ⊘ RV404

8. Low and mid-tension adjustment

Measuring instruments

Oscilloscope with input : DC
trigger: Automatic
Tentelo meter
Servo Ext board
Servo Gain adjustment jig (set of ROMs for tension adjustment)

Note: Before starting adjustments, make sure that the " 1.Shuttle offset adjustment" have been performed properly.

Adjustment Procedure

1) Extend the RS-24 board using the Servo Ext board. (Perform this procedure after putting the unit in the power off state.)
2) Load a 14"(inch) tape and wind the tape about half the length in FF or REW mode.
3) Change the ROMs ICC6, C7, C12 and C13 on the TRC board with the test ROMs for tension adjustment of the Servo Gain adjustment jig. (Perform this procedure after putting the unit in the power off state.)
4) Turn on the power and load a tape, then place the unit in the stop mode. If the tape runs at this moment, stop the tape running by rotating RV405 (SL).
   If the tape runs in the FF direction, rotate RV405 4 or 5 turns in the clockwise direction.
   If the tape runs in the REW direction, rotate RV405 in the counterclockwise direction.
   If the tape rapidly runs and shuts off, keep the shut off status and rotate RV405 (SL) 4 or 5 turns as described below.
   If the tape runs in the FF direction and shuts off, rotate RV405 4 or 5 turns in the clockwise direction.
   If the tape runs in the REW direction and shuts off, rotate RV405 4 or 5 turns in the counterclockwise direction.
5) In the stop mode, place the TENTELOMETER between the tension roller and guide roller of the take-up side and set the tension to 180 g ± 5 g by rotating RV401(TL).
   If the tension is greatly deviated and RV401 is adjusted, the tape starts moving again. So adjust RV405 (SL) in the same manner as described in the procedure 4) above until the tape begins to move in the opposite direction. After this, alternately adjust RV401 (TL) and RV405 (SL) to set the tension to 180 g ± 5 g when the tape is in the stop state.
6) Rotate the shuttle dial in the FWD direction and adjust RV406 (SM) to obtain 0 V ± 10mV of voltage at TP505.
   If the adjustment is deviated greatly, the tape sometimes does not run. In this case, rotate the reel by hand and perform the adjustment while the FF button is lit.
7) Rotate the shuttle dial in the REW direction and adjust RV402 (TM) to obtain 0 V ± 10mV of voltage at TP505.
   If the adjustment is deviated greatly, the tape sometimes does not run. In this case, rotate the reel by hand and perform the adjustment while the REW button is lit.
8) Press the PLAY button and adjust RV405 (SL) to obtain 0 V ±10mV of voltage at TP505.
   Press the STOP button. At this moment, the tape runs but this is normal so turn the power off immediately.
9) Remove the test ROMs for the tension adjustment on the TRC board and install the original ROMs previously removed.

Adjustment points: RV401, 402, 405 and 406

9. Maximum tape transport speed adjustment

Measuring instrument
Frequency counter

Adjusting procedure

1) Load a 14-inch tape. Wind the tape approximately half a length in fast forward or rewind mode and set the unit in stop mode.
2) Transport the tape in fast forward and rewind mode and detect the TP501 frequency to see in which mode the frequency is higher, in fast forward or rewind.
3) Transport the tape in the mode of the higher frequency. Turn RV501 until the TP501 frequency becomes between 41.7 kHz and 41.3 kHz.
   Specifications : TP501 frequency = 41.7 kHz - 41.3 kHz
   Adjusting point : ⊘ RV501

10. Speed servo gain adjustment

Measuring instrument
Servo gain adjusting jig (Test ROM set for tension adjustment)

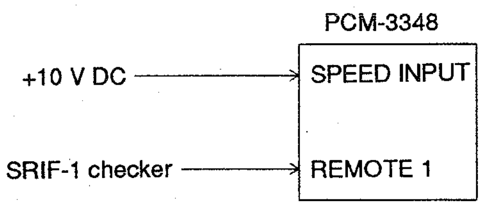
Adjusting procedure

1) Remove the ROM of ICC6, C7, C12 and C13 of TRC board and place the test ROM (Perform this with the power turned off.)
2) Connect the OSC OUT of the servo gain adjusting jig to TP601, CH1 to TP603 and CH2 to TP602. Set the CS/RS selector to RS-V.
3) Load a 10-inch tape. Wind the tape approximately halfa length in fast forward or rewind mode. Set the unit in forward slower wind mode and leave it for about 1 minute.
4) Slowly turn RV601 and stop when the servo gain LED changes to OK. Leave it for about 30 seconds and confirm the OK LED is on.
5) Connect the OSC OUT of the servo gain adjusting jig to TP611, CH1 to TP613 and CH2 to TP612. Set the CS/RS selector to RS-V.
6) Set the unit in backward slower wind mode and leave it for about 1 minute.
7) Slowly turn RV602 and stop when the servo gain LED changes to OK. Leave it for about 30 seconds and confirm the OK LED is on.

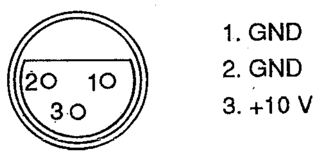
Adjusting points: ⊘ RV601 and 602

11. External speed adjustment

Connection



SPEED INPUT



Measuring instrument
Frequency counter
SRIF-1 checker
DC power source +10 V (±0.1 V)
Digital voltmeter

Adjusting procedure

1) Load a 14-inch tape. Wind the tape approximately half a length in fast forward or rewind mode and set the unit in stop mode.
2) Connect the SRIF-1 checker to REMOTE-1 on the rear panel.
   Set the DC power source to +10 V•0.1 V using the digial voltmeter and connect it to SPEED INPUT on the rear panel.
3) Press the EXT SPEED button of the SRIF-1 checker. Turn RV701 until the TP501 frequency becomes 37.5 kHz to 36.0 kHz.
   Specifications : TP501 frequency = 37.5 kHz - 36.0 kHz
   Adjusting point : ⊘ RV701

12. External, phase offset adjustment

Measuring instrument
Oscilloscope input : DC
trigger : auto

Adjusting procedure
Set the oscilloscope to the 500 mV/div range.
Specifications : TP701 voltage = 2.5 V ± 50 mV
Adjusting point : ⊘ RV702

13. Servo gain rising curve adjustment

The servo gain rising curve has already been adjusted with the production jig.
Do not adjust ⊘ RV603.

14. D/A converter offset adjustment

Measuring instrument
Oscilloscope input : DC
trigger : auto

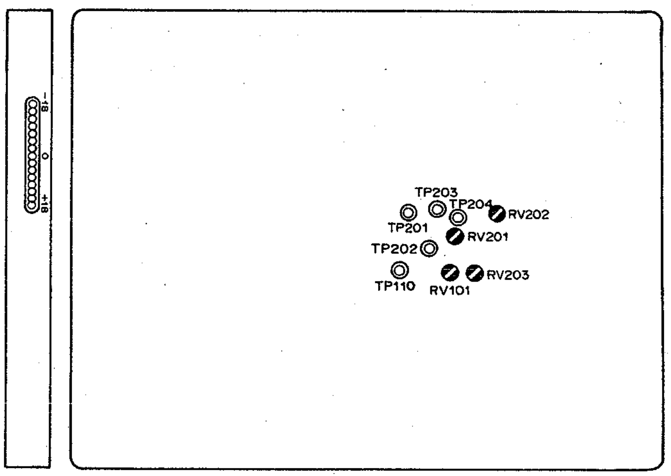
Adjusting procedure
Set the oscilloscope to the 50 mV/div range.
Specifications : IC 306-1pin voltage = 0 V ± 10 mV
Adjusting point : ⊘ RV301

Note: This adjustment is necessary for serial No. 10502, 10504, 10601 and higher.

6-3-3. CS-24 board adjustment

Perform the electrical adjustment on the capstan servo PC board (CS-24 board) when the capstan motor or the CS-24 board is replaced.

Adjusting points



CS-24 PC board - component side -
(No. 1-627-099-12)

Measuring instrument
Oscilloscope
Tentelo meter
Servo gain adjusting jig
Servo extension board
Extension board (A)
Wow/flutter meter

Adjusting points
CS-24 PC board ⊘ RV101, RV102 and RV202
RS-24 PC board ⊘ TH(RV403), SH(RV407) and SF(RV404)

Adjusting procedure

1. Confirmation or adjustment of tension value

1) Load a 14-inch blank tape and wind the tape approximately half a length in fast forward or rewind mode.
2) Set the unit in stop mode. Confirm that the tension values of the take-up and supply sides are within the 200g ± 2g range.
3) Otherwise, turn trimmers ⊘ TH and ⊘ SH of the RS-24 board so that the tensions become within this range.
4) Then set the unit in play mode. Confirm that the tension value of the supply side is within the 150g ± 2g range.
5) Otherwise, turn the trimmer ⊘ SF of RS-24 board so that the tension becomes within this range.

Specifications:
RS-24 board Trimmer ⊘ TH (RV403) 200g ± 2g
Trimmer ⊘ SH (RV407) 200g ± 2g
Trimmer ⊘ SF (RV404) 150g ± 2g
Adjusting points: Trimmer TH, SH and SF

2. Offset adjustment of capstan motor drive voltage

1) Extend the CS-24 board using the servo extension board.
2) Turn RV101 fully counterclockwise and set RV202 at the center.
3) Set the unit in Fs:48 kHz and wind a 14-inch tape approximately half a length. Then set the unit in play mode. (Use a blank tape.)
4) Connect the probe to Pin 1 of IC208 and turn RV 201 so that the voltage of this point is shown by oscillation around 0 V as the center (The voltage range of the oscilloscope is set to 20 mV/div or 50 mV/div). If it does not become 0 V, RV202 may be turned.
5) Check the voltage of Pin 7 of IC208 at this time. This voltage is supposed to be V1.
6) Turn RV201 so that the TP204 voltage becomes -V1.

Adjusting points: ⊘ RV201 (TP204 and IC208 Pins 1 and 7)

3. Adjustment of the capstan fan motor drive voltage caused by unsteady operation of the motor

1) Set the Fs to 48 kHz and wind a 14-inch tape approximately half a length. Then set the unit in play mode. (Use a blank tape.)
2) Turn RV202 so that the TP110 voltage is shown by oscillation around 0 V as the center.

Specifications : TP110 voltage = 0±50 mVdc
Adjusting point : ⊘ RV202 (TP110)

4. Phase servo gain adjustment

1) Connect the OSC OUT of the servo gain adjusting jig to TP201, CH1 to TP203 and CH2 to TP202 with three BNC-alligator clip cables.
2) Set the CS/RS selector of the servo gain adjusting jig to CS. Turn the power on and wait for about 3 minutes.
3) Keeping the unit in stop mode, slowly turn RV101 so that the LED of the servo gain adjusting jig becomes OK.
   As the servo gain adjusting jig is slow to respond, wait for about 10 seconds after turning RV101 a little. Unless the LED becomes OK, again turn RV101 a little.

Adjusting point : ⊘ RV101 (TP201, TP202 and TP203)

5. Confirmation of wow/flutter during recording and playback.

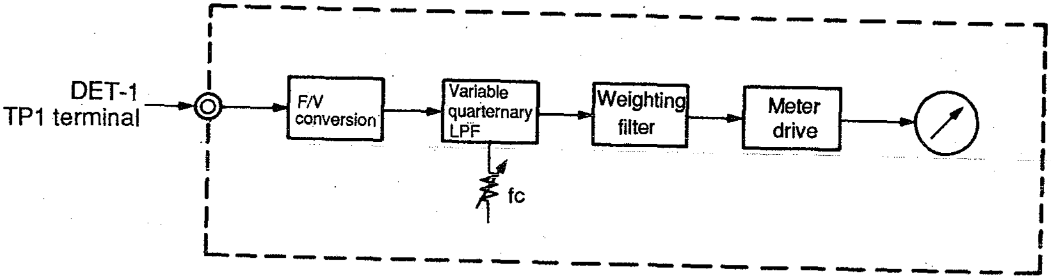
Note) Be sure to perform this confirmation after "6-4-3 DET-6 PC board adjustment" has been completed.

1) Extend the CK-31 board using the extension board (A).
2) Turn on bit 8 of SW011 of the CK-31 board.
3) Connect the WORD SYNC OUT signal from the rear panel to TP025 of the CK-31 board.
4) Load a tape with recorded CTL (Fs:48 kHz). Record on all digital audio channels for about 5 minutes in the insert recording mode.
5) Play back the recorded portion and confirm that the playback satisfies the following specifications.

Otherwise, the capstan motor may be defective.

Specifications : Wow/flutter of TP1 terminal of DET-1 board
= 0.04 % or less.
[(Weighted)
(RMS)
(fc=200 Hz, quaternary LPF)]

Note) For fc, refer to the following block diagram of the wow/flutter meter.



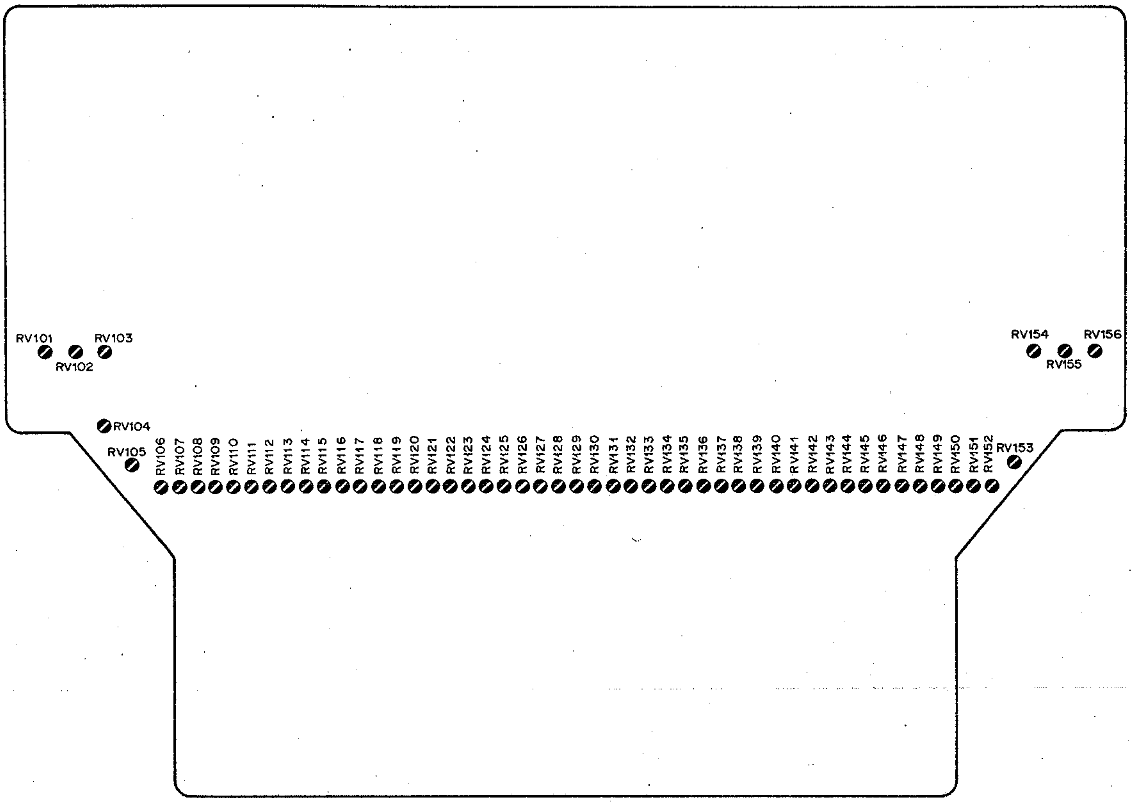
Block diagram of the wow/flutter meter

6-4. ADJUSTMENT OF THE ELECTROMAGNETIC CONVERTERS

6-4-1. Adjustment of the REC-5 board

By adjusting the REC-5 board, the recording current on all the 52 tracks, i.e., the digital audio tracks and the AUX tracks (CTL, TC, analog A1, A2) of the two recording heads (ADVANCE and SYNC) is adjusted.

Adjusting points


RV101
RV102
RV103
RV104
RV105
RV106
RV107
RV108
RV109
RV110
RV111
RV112
RV113
RV114
RV115
RV116
RV117
RV118
RV119
RV120
RV121
RV122
RV123
RV124
RV125
RV126
RV127
RV128
RV129
RV130
RV131
RV132
RV133
RV134
RV135
RV136
RV137
RV138
RV139
RV140
RV141
RV142
RV143
RV144
RV145
RV146
RV147
RV148
RV149
RV150
RV151
RV152
RV153
RV154
RV155
RV156

REC-5 board - component side - (No. 1-627-121-11)

Measuring instrument
RMS voltmeter (HP 400FL)
High frequency driver
Extension board (A)
Tape for recording, C1D-1/2AJ
Use the C1D-1/2A tape with the current characteristic value (%) 100±3%. (Do not use the tape having the current characteristic less than 95%.)

1. Adjustment of the recording current on the advance recording head

It consists of the following four procedures.

Setting the switch and control

REC MODE : ADVANCE REC
Fs : 48kHz
CK-31 board TEST MODE : SWO11 1 ON (384kHz(1.5T) rectangular wave generation)
MC-33 board SW1 : 3 ON (CTL protection to OFF)
ARP-2 board PWM/BIAS : PWM

The boards and controls on the REC-5 board required to perform recording current adjustment on each track are as follows:

Advance recording head

AUX track

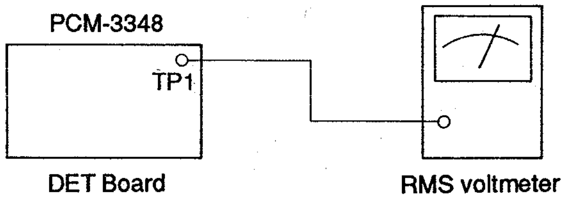
Current adjusting track	REC-5 control	Board
CTL	⊘ RV128	CTL
TC	⊘ RV103	TC
Analog A1	⊘ RV102	ARP
Analog A2	⊘ RV101	

Digital audio track

Current adjusting channel	REC-5 control	Board
1.25	⊘RV104	DET1
2.26	⊘RV105	
3.27	⊘RV106	
4.28	⊘RV107	
5.29	⊘RV108	
6.30	⊘RV109	
7.31	⊘RV110	
8.32	⊘RV111	
9.33	⊘RV112	
10.34	⊘RV113	
11.35	⊘RV114	
12.36	⊘RV115	
13.37	⊘RV116	DET2
14.38	⊘RV117	
15.39	⊘RV118	
16.40	⊘RV119	
17.41	⊘RV120	
18.42	⊘RV121	
19.43	⊘RV122	
20.44	⊘RV123	
21.45	⊘RV124	
22.46	⊘RV125	
23.47	⊘RV126	
24.48	⊘RV127	

(1) Adjustment of the recording current on the digital audio track

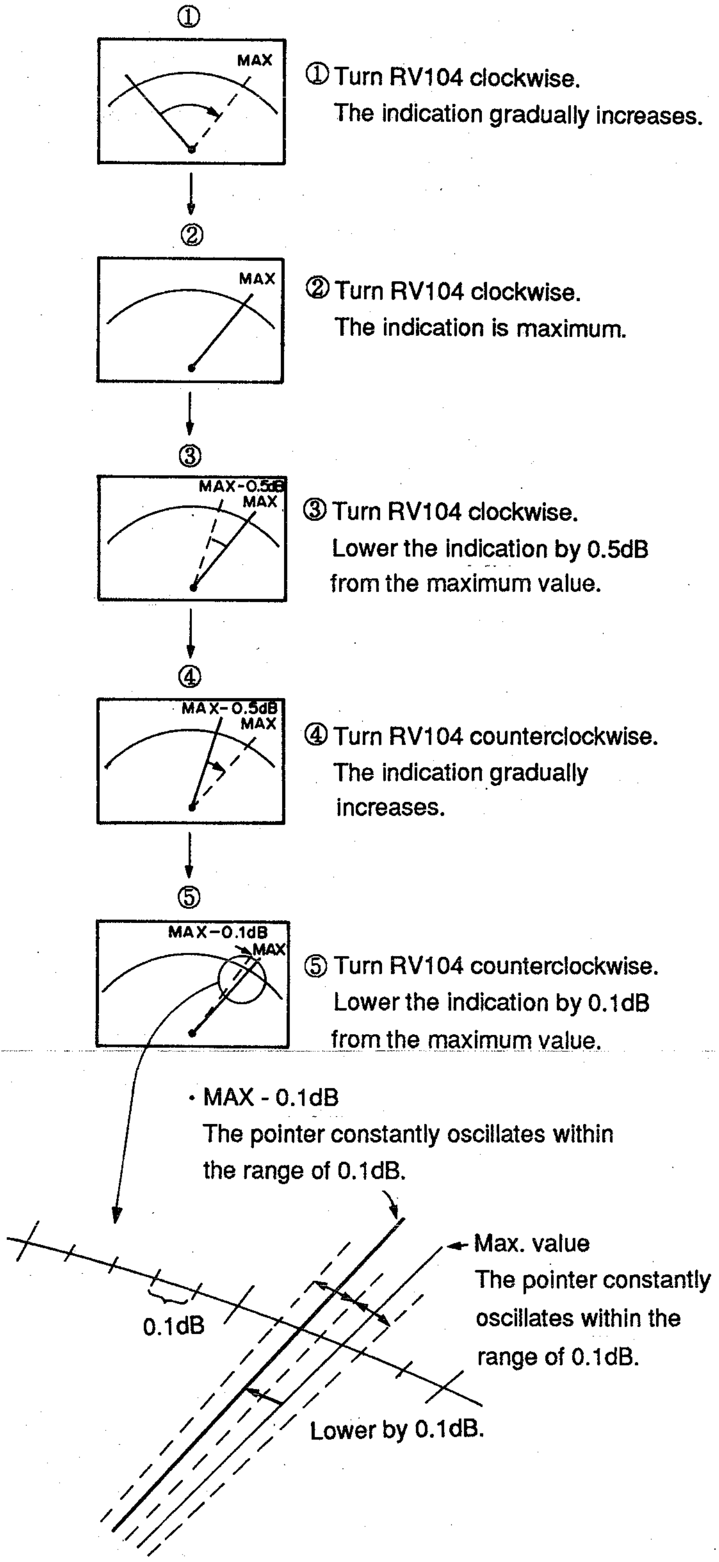
Connection



1) Pull out the DET board (corresponding to the adjusting channel) with the extension board (A) and connect the RMS voltmeter to TP1 (of the adjusting channel).

2) Adjustment of the recording current on CH1·25
Start recording only of the CH1 with the C1D-1/2AJ tape for recording. (Refer to the diagram.)
   ① Turn fully RV104 of the REC-5 board counterclockwise, and then, turn RV104 clockwise, observing the scale of the RMS voltmeter. (The value of the voltmeter gradually increases.)
   ② Turn RV104 clockwise and check the RMS voltmeter shows the maximum value (MAX). (By turning the control, the stable value is shown for a while. That is the maximum value.)
   ③ By further, turning RV104 clockwise, the value of the RMS voltmeter gradually decreases. When the RMS voltmeter lowered by 0.5dB from the maximum value, stop RV104.
   ④ Slowly turn RV104 counterclockwise, so the value of the RMS voltmeter gradually increases. Check again the RMS voltmeter shows the maximum value.
   ⑤ Slowly turn RV104 counterclockwise, and when the RMS voltmeter lowered by 0.1dB from the maximum value, stop RV104.
   If a tape of the current characteristic value more than 105% (% indication) is unavoidably used, adjust the value to 0.2dB lower, not 0.1dB.

   The above procedures automatically adjust CH25 as well as CH1.



① Turn RV104 clockwise.
The indication gradually increases.

② Turn RV104 clockwise.
The indication is maximum.

③ Turn RV104 clockwise.
Lower the indication by 0.5dB from the maximum value.

④ Turn RV104 counterclockwise.
The indication gradually increases.

⑤ Turn RV104 counterclockwise.
Lower the indication by 0.1dB from the maximum value.

- MAX - 0.1dB
The pointer constantly oscillates within the range of 0.1dB.

Max. value
The pointer constantly oscillates within the range of 0.1dB.

Lower by 0.1dB.

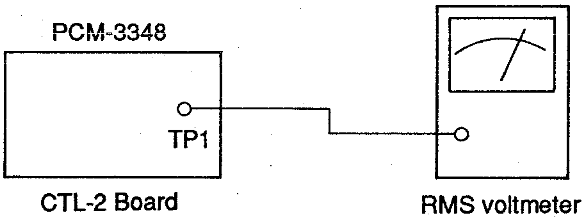
Lower by 0.1dB in due consideration of the oscillating range because the pointer constantly oscillates within the range of 0.1dB.

3) Adjustment of the recording current on the 2 - 24CH (26 - 48CH)
Set the adjusting channel (one of 2 - 24CH) to the recording mode, and perform adjustment of the recording current using the controls on the REC and DET test points respectively.
Perform procedures ① to ⑤ of above step 2).

On this unit the recording current on two tracks is controlled under one control, so that 25 - 48CH are automatically adjusted by adjusting 1 - 24CH. However, do not adjust 25 - 48CH for 1 - 24CH.

(2) Adjustment of the recording current on the CTL track

Connection

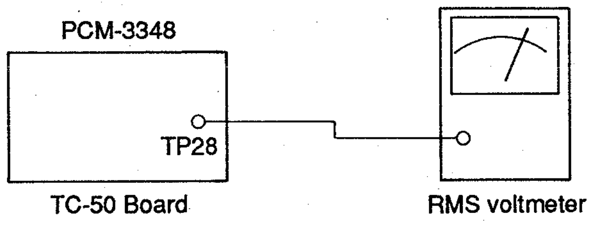


1) Pull out the CTL-2 board with the extension board (A) to connect the RMS voltmeter to TP1.

2) Adjustment of the recording current
Use the C1D-1/2A tape for recording and set the CTL track to the recording mode.
Using CTL recording current control RV128 of the advance recording head, perform the same procedure as that of the digital audio track.
Perform procedures ① to ⑤ of the above (1) 2).
(RV128)

(3) Adjustment of the recording current on the TC track

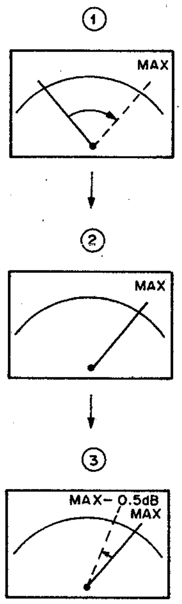
Connection



1) Pull out the TC-50 board with the extension board (A) and connect the RMS voltmeter to TP28.

2) Adjustment of the recording current (Refer to the figure.)
   Use the C1D-1/2A tape for recording and set only TC to the recording mode.

① Turn fully RV103 of the REC-5 board counter-clockwise, and then, turn RV103 clockwise, observing the scale of the RMS voltmeter. (The value of the RMS voltmeter gradually increases.)
② Slowly turn RV103 clockwise to check the RMS voltmeter shows the maximum value (MAX). (By turning the control, the stable value is shown for a while. That is the maximum volume.)
③ Further, slowly turn RV103 clockwise, so the RMS voltmeter gradually increases. When the value of the RMS voltmeter lowered by 0.5dB from the maximum volume, stop RV103.



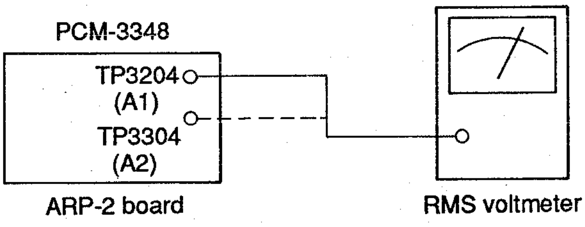
①Turn RV103 clockwise.
The indication gradually increases.

②Turn RV103 clockwise.
The indication is maximum.

③Turn RV103 clockwise.
Lower the indication by 0.5dB from the maximum value.

(4) Adjustment of the recording current on analog tracks A1 and A2

Connection



1) Pull out the ARP-2 board with the extension board (A) and connect the RMS voltmeter to TP3204 (or TP3304 when adjusting A2).

2) Adjustment of the recording current
Use the C1D-1/2AJ tape for recording and set only A1 (or A2 when adjusting A2) to the recording mode.
Using the A1 recording current control RV102 (or RV101 when adjusting A2) for the advance recording head, perform the same procedure as the adjustment of the TC track. Perform procedures 1. to 3. of the above (3) 2).
(Use RV102 when adjusting A1 and RV101 when adjusting A2)

2. Recording current adjustment of the SYNC and REC heads

Setting the switch and control
REC MODE : INSERT REC
Fs : 48kHz
CK-31 board TEST MODE : SWO11 1 ON (384 kHz (1.5T) rectangular wave generation)
ARP-2 PWM/BIAS : PWM
RS-24 board { SW1 : B (reverse playback mode)
NORM/TEST : TEST

Note: Perform selection of NORM/TEST of the RS-24 board while the tape is unloaded. (Do not select during tape loading) During reverse playback, it takes two seconds after pressing the SYSCON·KEY (ex. PLAY, REC) to enter the selected mode.

The controls on the REC-5 board and the boards necessary for adjustment on each current adjusting track are described in the separate table (page 6-19).

(1) Adjustment of the recording current on the digital audio track

1) Check that the unit is in the reverse playback mode.
2) Perform the same procedures as the adjustment of the advance recording head.
(Refer to 1 (1).)

(2) Adjustment of the recording current on the CTL track

1) Check that the unit is in the reverse playback mode.
2) Perform the same procedures as the adjustment of the advance recording head.
(Refer to 1 (2).)

(3) Adjustment of the recording current on the TC track

1) Check that the unit is in the reverse playback mode.
2) Perform the same procedures as the adjustment of the advance recording head.
(Refer to 1 (3).)

(4) Adjustment of the recording current on analog tracks A1 and A2

1) Check that the unit is in the reverse playback mode.
2) Perform the same procedures as the adjustment of the advance recording head.
(Refer to 1 (4).)

SYNC REC head

AUX track

Current adjusting track	REC-5 control	Board
CTL	⊘RV129	CTL
TC	⊘RV154	TC
Analog A1	⊘RV156	ARP
Analog A2	⊘RV155	

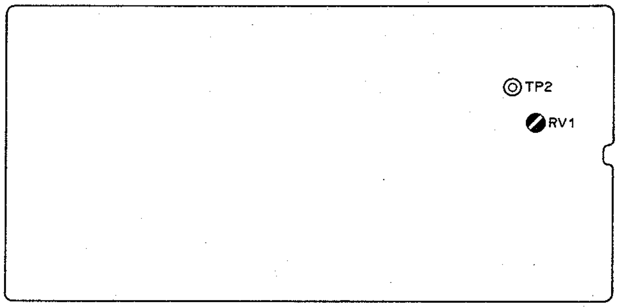
Digital audio track

Current adjusting channel	REC-5 control	Board
1.25	⊘RV130	DET1
2.26	⊘RV131	
3.27	⊘RV132	
4.28	⊘RV133	
5.29	⊘RV134	
6.30	⊘RV135	
7.31	⊘RV136	
8.32	⊘RV137	
9.33	⊘RV138	
10.34	⊘RV139	
11.35	⊘RV140	
12.36	⊘RV141	
13.37	⊘RV142	DET2
14.38	⊘RV143	
15.39	⊘RV144	
16.40	⊘RV145	
17.41	⊘RV146	
18.42	⊘RV147	
19.43	⊘RV148	
20.44	⊘RV149	
21.45	⊘RV150	
22.46	⊘RV151	
23.47	⊘RV152	
24.48	⊘RV153	

6-4-2. Adjustment of the CTL-2 board

Perform this adjustment when replacing the playback head, the PRE board, the CTL-2 board or the CTL PB input block and its peripheral parts.

Adjusting points



CTL-2 board - component side -
(No. 1-627-116-11/-12/-13)

1. Adjustment of the CTL playback level

Measuring instrument
Oscilloscope
Extension board (A)
Tape for recording, C1D-1/2AJ

Setting the switch and control
Fs : 48kHz
ADVANCE REC MODE
ALL CHANNEL REC READY
MASTER SAFE OFF

Adjusting point
RV1

Adjusting procedure
Pull out the CTL-2 board with the extension board (A) and connect the probe of the oscilloscope to the TP2 terminal. Place the C1D-1/2AJ tape for recording and set the oscilloscope as follows.

V : 2V/DIV
H : 10µs/DIV
INPUT : AC COUPLING
TRIGGER : DC COUPLING

Place the C1D-1/2AJ tape for recording and start the advance recording to observe the TP2 terminal by the oscilloscope.
Adjust RV1 with the adjusting rod so that the playback level of the TP2 CTL playback waveform is set to 4±0.1Vp-p.

6-4-3. Adjustment of the DET-6 board

Adjust the digital audio track playback block, when replacing the DET-6 board, PRE-1 board and the playback head.

Measuring instrument
Oscilloscope
AR3348-2 DET ADJ
Head demagnetizer
Extension board (A)

Setting the switch and control
Keep the master switch ON until the self-recording and playback of Item 8) is completed.

Adjusting points
Each channel on the DET-6 board (CH1 - CH48)
: ⊘ RV1, RV2

Adjusting procedure

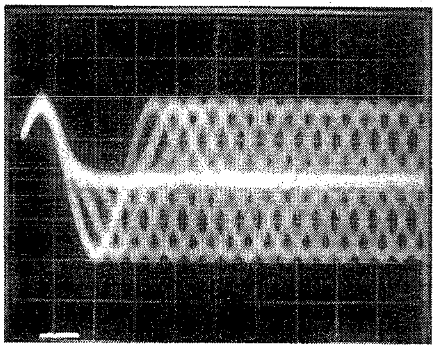
1) Clean the head tape guide and other parts with the cleaning swab. Then, demagnetize with the head eraser.

2) Pull out the DET-1 board with the extension board (A) (when adjusting 1 - 12CH).

3) Play back the first half section of the AR3348-2 DET ADJ (Fs=44.1kHz).

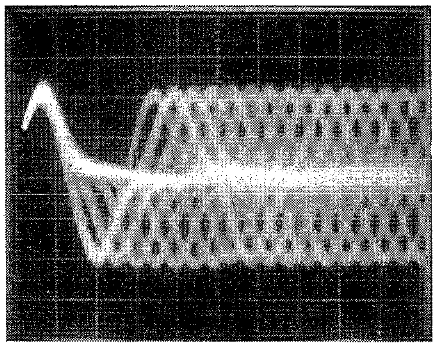
4) Rough adjustment (for 1 - 48CH)
Connect the probe of the oscillosocpe to TP2 of CH-1 on the DET-1 board and adjust semifixed resistors RV1 and RV2 alternately so that the waveform as shown in Photo 1 is displayed. It is important to adjust so that the zero line is in a horizontal straight line and that the meshes are not broken. The waveforms as shown in Photos 2 (under) and 3 (over) are not acceptable.
The rough adjustment is now completed.
Adjust 2 - 48CH, if neccesary.

Photo 1 : Correct



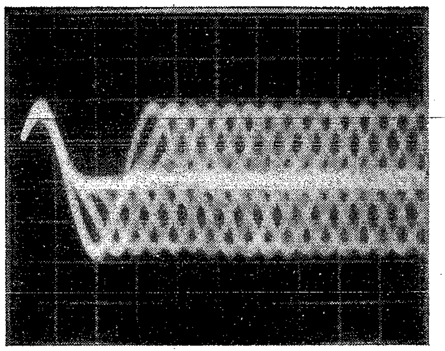
↔ 1μsec/DIV
↕ 500mV/DIV

Photo 2 : Under



↔ 1μsec/DIV
↕ 500mV/DIV

Photo 3 : Over



↔ 1μsec/DIV
↕ 500mV/DIV

5) Fine adjustment 1 (for 1 - 24CH)
Connect the probe of the oscilloscope to CH-1 on the DET-1 board and check that the waveform is similar to that shown in Photo 4. Then, play back setting the Fs to 44.1k and the variable speed to -12.5%, and check that the zero cross margin (voltage of the section shown by the arrow marks in Photo 5) is more than 250mV. If the margin is less, adjust RV2 a little to arrange the waveform.
(The waveform as shown in Photo 5 is critical.)
If necessary, adjust 2 - 24CH.

6) Fine adjustment 2 (for 1 - 24CH)
Play back the latter half section of the AR3348-2 DET ADJ at Fs 48kHz and a speed of +12.5% to observe the TP6 waveform. At this time, adjust only RV1 so that the jitter of the eye pattern near the zero cross is reduced. For example, as Photo 6 is too under, the vicinity of the zero cross is not clear. In order to reduce the jitter, it may be somewhat under, but it must never be over. Furthermore, do not move RV2. If moved, perform again the procedures from 4).

7) Fine adjustment 2 (for 25 - 48CH)
As 25 - 48CH are the channels exclusively for double-density, somewhat different adjustment is required.
After performing "4) Rough adjustment", move RV1 and RV2 alternately according to "5) Fine adjustment 1" so as to satisfy the zero cross margin and the jitter at the zero cross point. The jitter can be easily observed in the enlarged size as shown in Photo 7. "6) Fine adjustment 2" is not required.

Photo 4 : Correct

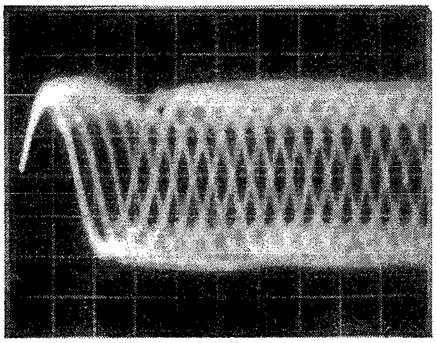
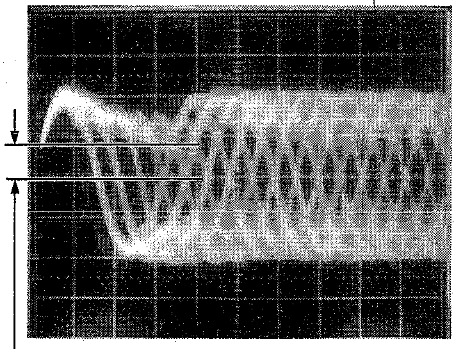


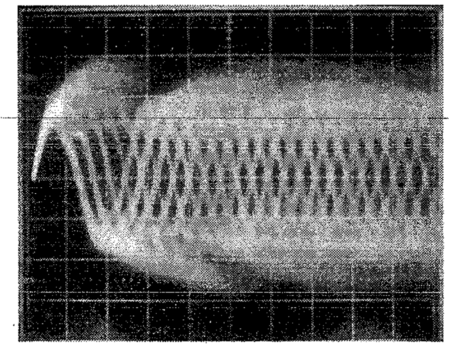
Photo 5



↔ 1μsec/DIV
↕ 500mV/DIV

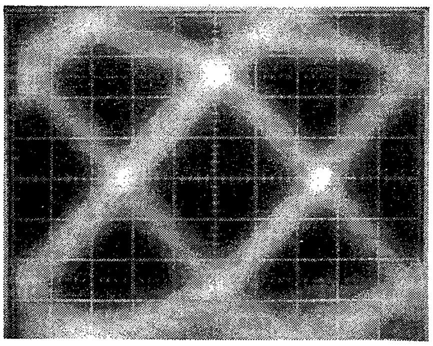
Zero cross margin (more than 250mV)

Photo 6 : Under



↔ 1μsec/DIV
↕ 500mV/DIV

Photo 7



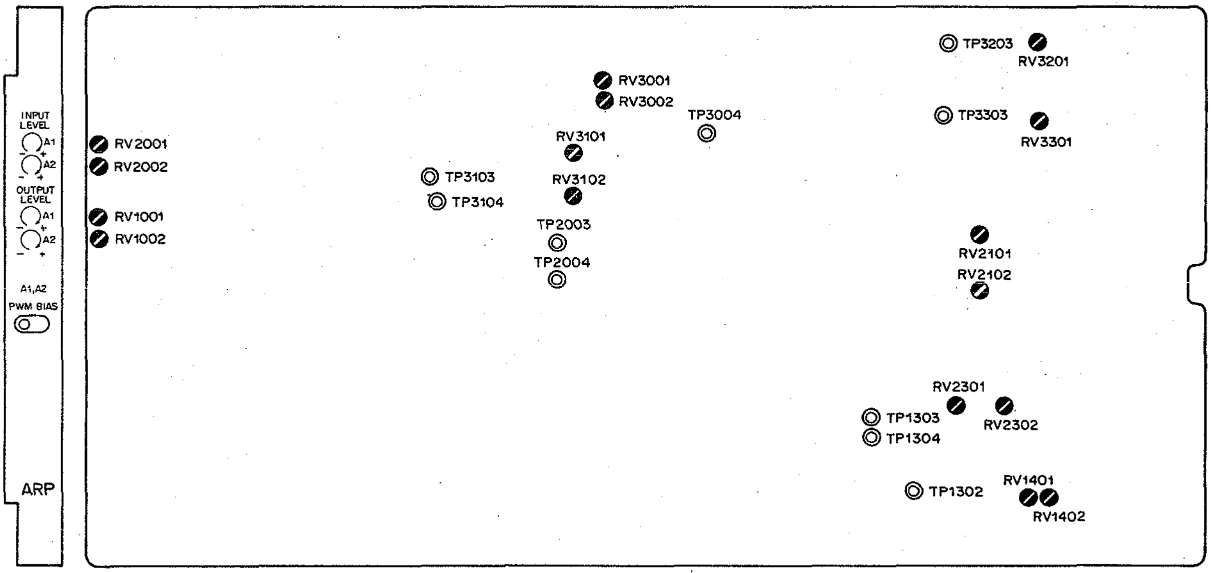
↔ 100nsec/DIV
(Delayed)
↕ 200mV/DIV

6-5. ADJUSTMENT OF THE CUE TRACK

6.5.1. Adjustment of the ARP-2 board

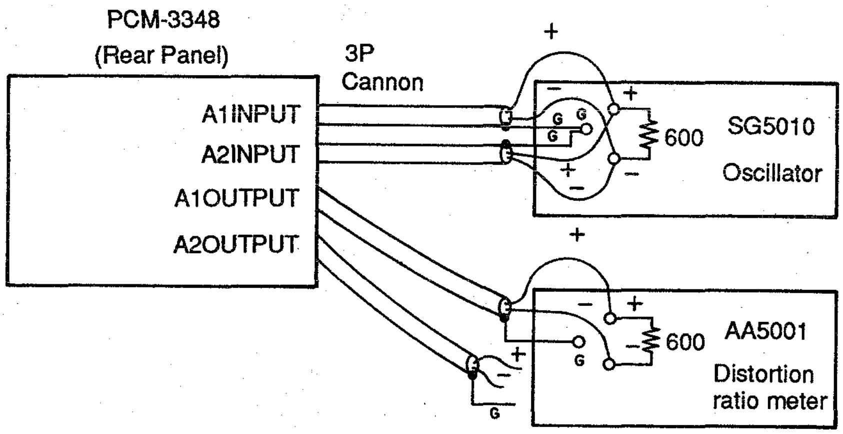
Adjustment of the ARP-2 board electrically controls the A1 and A2 playback systems. Perform this adjustment when replacing the ARP-2 board, the recording head, the PB head or the PRE-1 board, or when the electrical charactristic of the analog track is out of the standard.

Adjusting sections

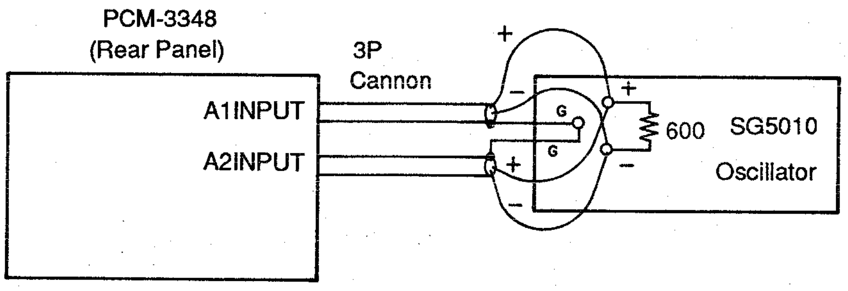

INPUT LEVEL
A1
A2
OUTPUT LEVEL
A1
A2
A1,A2 PWM BIAS
ARP
RV2001
RV2002
RV1001
RV1002
TP3103
TP3104
RV3001
RV3002
TP3004
RV3101
RV3102
TP2003
TP2004
TP3203
RV3201
TP3303
RV3301
RV2101
RV2102
RV2301
TP1303
TP1304
RV2302
TP1302
RV1401
RV1402

ARP-2 board-component side -
(No. 1-627-107-11/12)

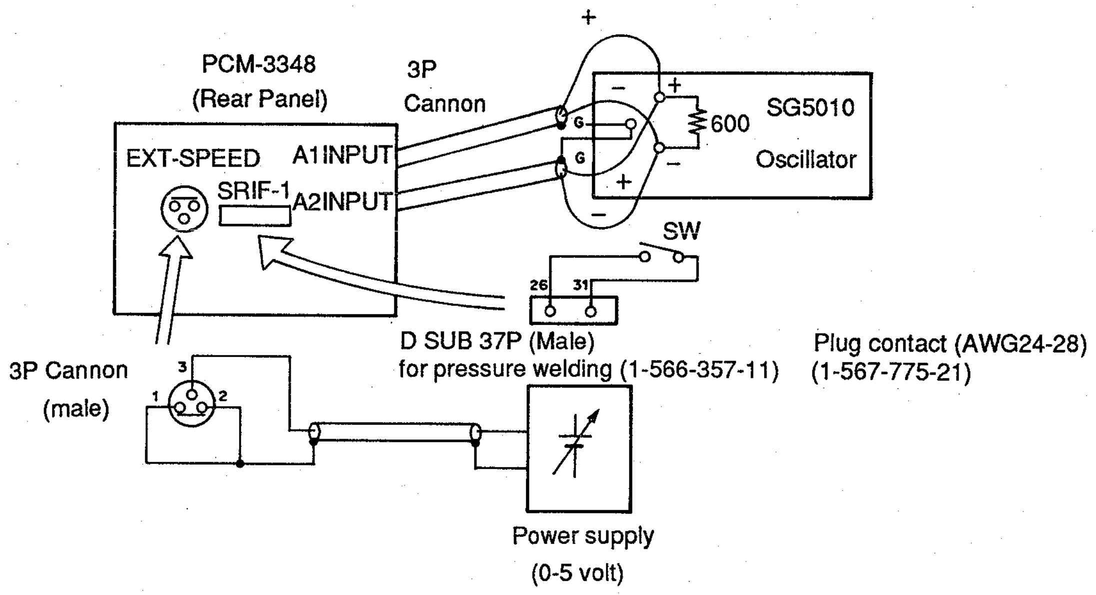
Connecting diagram


PCM-3348
(Rear Panel)
A1INPUT
A2INPUT
A1OUTPUT
A2OUTPUT
3P
Cannon
+
-
G
600
SG5010
Oscillator
AA5001
Distortion
ratio meter

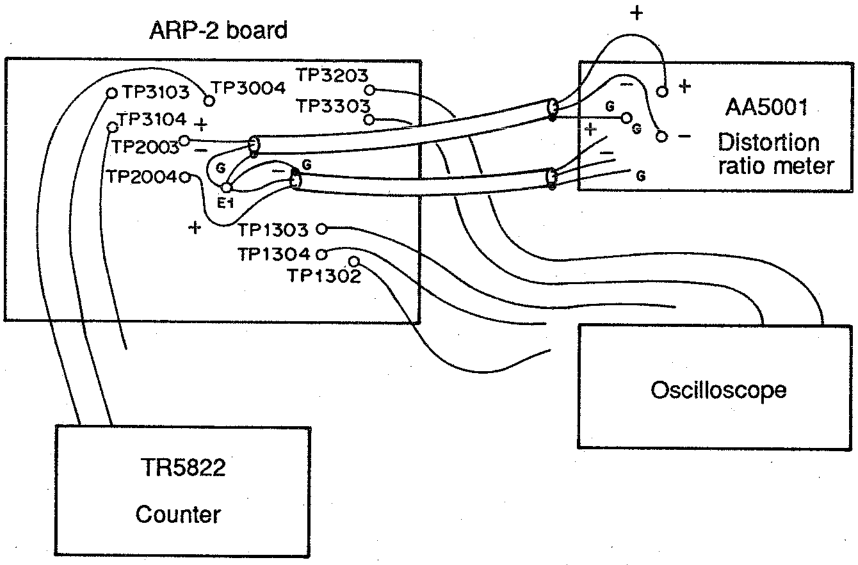
Connection 2.


PCM-3348
(Rear Panel)
3P
Cannon
A1INPUT
A2INPUT
+
−
G
G
+
−
+
−
600
SG5010
Oscillator

Connection 3.


PCM-3348
(Rear Panel)
3P
Cannon
EXT-SPEED
A1INPUT
SRIF-1
A2INPUT
+
−
+
G
G
+
−
−
600
SG5010
Oscillator
SW
26
31
D SUB 37P (Male)
for pressure welding (1-566-357-11)
Plug contact (AWG24-28)
(1-567-775-21)
3P Cannon
(male)
3
1
2
Power supply
(0-5 volt)

Connection 4.


ARP-2 board
TP3103
TP3004
TP3203
TP3303
TP3104
+
TP2003
−
TP2004
G
E1
−
G
+
TP1303
TP1304
TP1302
+
−
+
G
G
−
+
−
G
AA5001
Distortion
ratio meter
Oscilloscope
TR5822
Counter

1. Adjustment of the input level

Measuring instrument
SG5010 Tektronix (generator)
AA5001 Tektronix (distortion ratio meter)

Adjusting sections
⊘RV2001, 2002

Adjusting procedures (Refer to connections 2 and 4.)
1) Input sine wave of 1kHz, 4dBm to A1 and A2 on the rear panels.
2) Adjust RV2001 so that the level of TP2003 inside the board is -10±0.1dBs.
   (Adjustment of the A1 input level)
3) Adjust RV2002 so that the level of TP2004 inside the board is -10±0.1dBs.
   (Adjustment of the A2 input level)

2. Adjustment of the output level

Measuring instrument
SG5010 Tektronix (generator)
AA5001 Tektronix (distortion ratio meter)

Adjusting sections
⊘RV1001, 1002

Adjusting procedures (Refer to connection 1.)
1) Input sine wave of 1kHz, 4dBm to the rear panels A1 and A2.
2) Input the monitor mode of A1 and A2 on the operation panel.
3) Adjust RV1001 inside the board so that the A1 output level of the rear panel is 4±0.1dBm.
4) Adjust RV1002 inside the board so that the A2 output level of the rear panel is 4±0.1dBm.

3. Adjustment of the meter level

* Also perform this adjustment when replacing the KY-142 board.

Measuring instrument
SG5010 Tektronix (generator)

Adjusting sections
⊘RV2301, 2302

Adjusting procedures (Refer to connection 2.)
1) Input the A1, A2 monitor mode on the operation panel.
2) Input sine wave of 1kHz, 3.5dBm to the rear panel A1, A2. Gradually turn RV2301 from the left to the right to adjust so that the sixth LED from the bottom of the A1 levelmeter lights. As for RV2302, adjust the A2 levelmeter similarly.
3) Input sine wave of 1kHz, 4dBm to A1 and A2 on the rear panel and check there is no flicker on the meter.

4. Adjustment of PWM Modulation Ratio and Duty

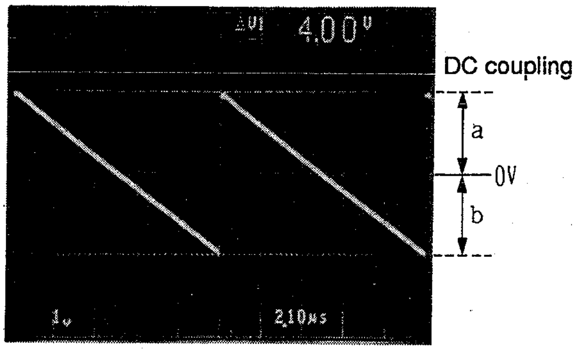
Measuring instrument
SG5010 Tektronix (generator)
475 Tektronix (oscilloscope)

Adjusting sections
⊘RV1401, 1402

Adjusting procedures (Connnection 2)

1) Set the sampling rate of the TSW panel to 48kHz.
2) Adjust RV1402 so that the RAMP waveform of the TP1302 is linear and 4±0.5 volt p-p. Then, adjust RV1401 to adjust the OFF SET of the RAMP wave.

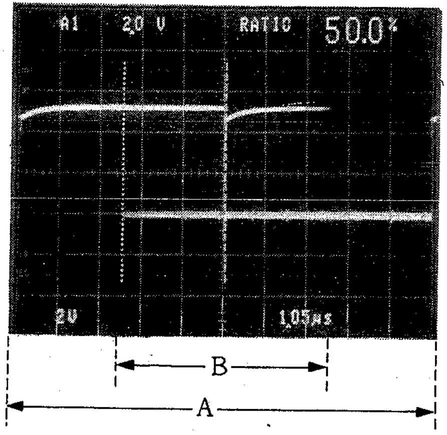
Photo



Reference : a=b=2volts in the TP1302 waveform
Adjustment : ⊘RV1401

3) Set the output of SG5001 to OFF. (non-modulation)
4) During non-moduration, adjust RV1401 so that the waveform of the TP1303 is 50±2% duty.
5) Simultaneously check that the waveform of TP1304 is 50±5% duty.
6) Input sine wave of 2kHz, 7.0dBm to A1 and A2 on the rear panel.
7) Set output of SG5001 to OFF. (non-modulation)
8) Adjust RV1402 so that waveform of TP1303 is at the modulation ratio of 50±2%.
9) Check waveform of TP1304 is at the modulation ratio of 50±5%.

Photo



Reference : modulation ratio B/A x 100 = 50±2% on the waveform of TP1303
Adjustment : ⊘RV1402 (adjustment of modulation ratio)
⊘RV1401 (adjustment of duty)

10) Set the sampling rate of the TSW panel to 44.1kHz.
11) Check that the waveform of TP1303 is at the modulation ratio of 50±5%.
12) Check that the waveform of TP1304 is at the modulation ratio of 50±5%.
13) Restore the sampling rate to 48kHz.

5. Adjustment of the PWM PB equalizer offset

Measuring instument
SG5010 Tekronix (generator)
TR5822 ADVNTEST (counter)
475 Tektronix (oscilloscope)
Power supply block (half power supply block 0 - 5 volt variable)
Tape for recording, CID-1/2AJ

Adjusting sections
⊘RV3201, 3301

Adjusting procedures (Refer to connections 3 and 4.)

1) Set the toggle switch on the panel surface of the board to the PWM side.
2) Set the sampling rate of the TSW panel to 48kHz.
3) Set output of SG5001 to OFF to perform non-modulation recording on a tape for recording, CID-1/2AJ.
4) Short-circuit the 26PIN and 37PIN of SRIF-1 on the rear panel. Then, give electric pressure of 0 - -5volts to the 3PIN of the EXT-speed, and Cannon 1PIN, 2PIN and 3PIN.
5) Playback the non-modulation recording section of the above tape.
6) Monitoring TP3004 inside the board by the counter, adjust electrical pressure so that the counter value is 10±0.5kHz.
   (Playback at 1/10 times speed.)
7) Monitoring TP3203 by the oscilloscope, adjust RV3201 to set the OFF set so that the comparator output of A1 is 50±10% while the non-modulation recording section is playbacked.
8) Monitoring TP3303 by the oscilloscope, adjust RV3301 to set the OFF set so that the comparator output of A2 is 50±10% while the non-modulation recording section is playbacked.

6. Adjustment of F V convert characteristic during slow playback

＊Perform this adjustment 20 minutes after turning the power switch on.

Measuring instrument
TR5822 ADVANTEST (counter)
Power supply block (half power supply block 0 - 5 volts variable)
475 Tektronix (oscilloscope)
Tape for recording, CID-1/2AJ

Adjusting sections
⊘RV3001, 3002

Adjusting procedures (Refer to connections 3 and 4.)

1) Set the toggle switch 2 on the panel surface to the PWM side.
2) Playback the non-modulation recording section of the tape and adjust the pressure value so that the counter value of TP3004 is 5±0.5kHz in the same manner as described in "5. Adjusting procedure".
3) Monitoring TP3103 by the counter, adjust RV3001 so the counter value is 28±0.5kHz.
4) Adjust RV3002 so that the counter value of TP3104 is 28±0.5kHz in the same manner.

7. Adjustment of the PWM playback gain in self-recording and -playback and check of distortion ratio and frequency characteristic

Measuring instrument
SG5010 Tektronix (generator)
AA5001 Tektronix (distortion ratio meter)
Tape for recording, CID-1/2AJ

Adjusting sections
⊘3101, 3102

Adjusting procedure (Refer to connection 1.)
1) Input sine wave of 1kHz, 4dBm to A1 and A2 on the rear panel.
2) Set the A1 and A2 monitor mode on the operation panel to REPRO.
3) Set the sampling rate of the TSW panel to 48kHz.
4) Set the toggle switch of the board panel to the PWM side.
5) Set the REC MODE of the TSW panel to ADV REC.
6) Monitor while initial-writing (?) a tape for recording, CID-1/2AJ.
7) Adjust RV3101 so that the A1 playback level is 4±0.2dBm due to the A1 output on the rear panel.
8) Adjust RV3102 so that the A2 playback level is 4±0.1dBm due to the A2 output on the rear panel.
9) Change frequency of the generator to 100Hz and 10kHz, and perform recording and playback. Then, check frequency characteristic at the two points of 100Hz and 10kHz and the distortion ratio at 1kHz with 1kHz as reference are not out of the specification.
10) Unload the tape and set the toggle switch (NORM/TEST) of the RS-24 board to the TEST side. Then, set the rotary switch 1 on the RS-24 board to 0B(H). (Do not care the switch 2.) Load the tape and enter the reverse mode.
11) Set the A1 and A2 monitor mode on the TSW panel to INSERT REC.
12) Set the A1 and A2 monitor mode on the operation panel to REPRO.
13) Perform the reverse recording playback in INSERT REC similarly when the advance recording is performed. Simultaneously, check the playback output level, distortion ratio and frequency characteristic.
14) Unload the tape and restore the toggle switch (NORM/TEST) to the NORM side. Then, load the tape to release the TEST mode (reverse mode).

SPEC (when initial-writing)	: THD+N	less than 3% (at 1kHz, 4dBm) 80kHz LPF ON
	F. characteristic	(based on 1kHz playback output)
		100Hz $^{+0}_{-3}$ dB
		10kHz $^{+0}_{-5}$ dB

8. Adjustment of the bias playback gain

Measuring instrument
SG5010 Tektronix (generator)
AA5001 Tektronix (distortion ratio meter)
Reference tape for the ARP adjustment

Adjusting sections
⊘RV2101, 2102

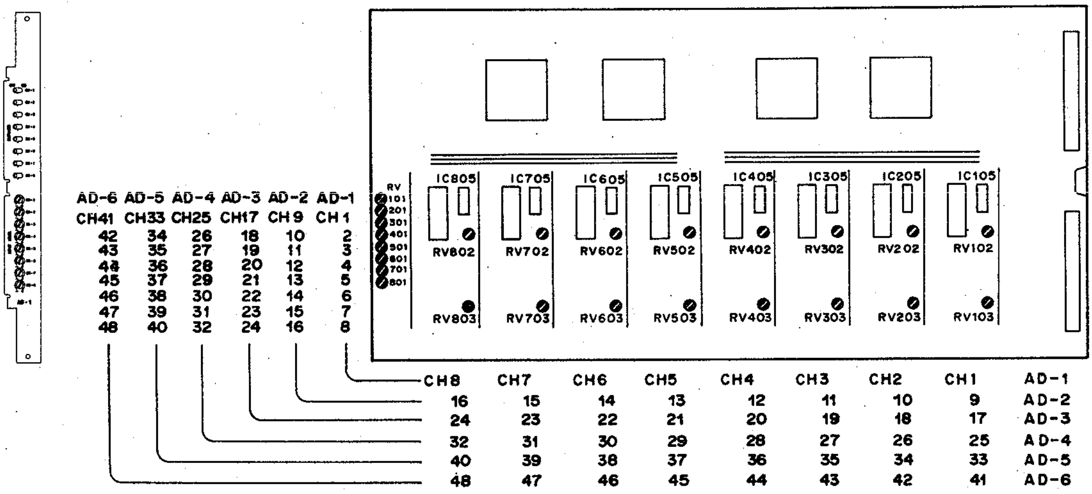
Adjusting procedures (Refer to connection 1.)
1) Set the toggle switch on the board panel surface to the BIAS side.
2) Reference tape for adjusting the ARP Playback its 1kHz section (of MRL-made 31L120-reference flux 200nW/m).
3) Adjust RV2101 so that the A1 output on the rear panel is 9±0.2dBm.
4) Adjust RV2102 so that the A2 output on the rear panel is 9±0.2dBm.
5) Restore the toggle switch on the board panel surface to the PWM side.

6-6. ADJUSTMENT OF AD AND DA

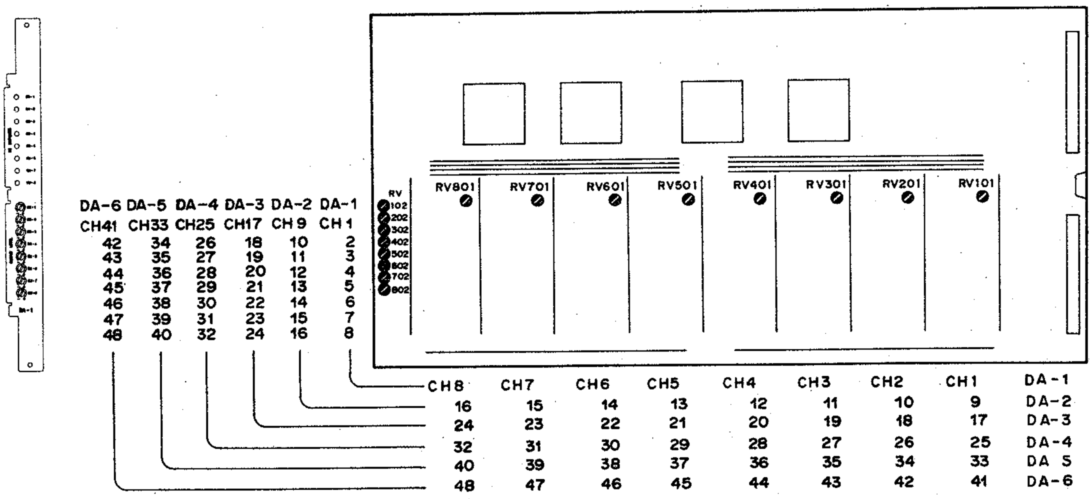
6-6-1. Adjustment and confirmation of the AD-36 and DA-25 boards

This section describes electrical adjustments of the AD and DA converter blocks. Perform this adjustment when replacing the analog semi-conductors or converter chips on the AD-36 and DA-25 boards. The setting level on each adjustment is based on the value when the unit was shipped from the factory.

(Input of Full-scale corresponds to output level of +24 dBs.)
Accordingly, if the input and output levels are adjusted differently from the fixed values, the setting levels must be correspondingly changed.
The adjustment must be performed after enough heat-up. (about 15 ~ 20 minutes.)
If only the DA board is maintained, items No. 3, No. 5 and No. 6 can be omitted.
Except above, practice every items.


AD-6 AD-5 AD-4 AD-3 AD-2 AD-1
CH41 CH33 CH25 CH17 CH9 CH1
42 34 26 18 10 2
43 35 27 19 11 3
44 36 28 20 12 4
45 37 29 21 13 5
46 38 30 22 14 6
47 39 31 23 15 7
48 40 32 24 16 8
RV
101
201
301
401
501
601
701
801
IC805 IC705 IC605 IC505 IC405 IC305 IC205 IC105
RV802 RV702 RV602 RV502 RV402 RV302 RV202 RV102
RV803 RV703 RV603 RV503 RV403 RV303 RV203 RV103
CH8 CH7 CH6 CH5 CH4 CH3 CH2 CH1 AD-1
16 15 14 13 12 11 10 9 AD-2
24 23 22 21 20 19 18 17 AD-3
32 31 30 29 28 27 26 25 AD-4
40 39 38 37 36 35 34 33 AD-5
48 47 46 45 44 43 42 41 AD-6

AD-36 board-component side -
(No. 1-625-487-12 and higher)

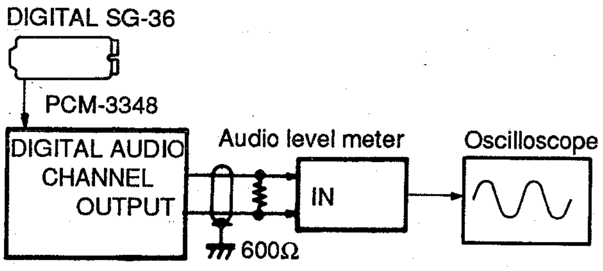

DA-6 DA-5 DA-4 DA-3 DA-2 DA-1
CH41 CH33 CH25 CH17 CH9 CH1
42 34 26 18 10 2
43 35 27 19 11 3
44 36 28 20 12 4
45 37 29 21 13 5
46 38 30 22 14 6
47 39 31 23 15 7
48 40 32 24 16 8
RV
102
202
302
402
502
602
702
802
RV801 RV701 RV601 RV501 RV401 RV301 RV201 RV101
CH8 CH7 CH6 CH5 CH4 CH3 CH2 CH1 DA-1
16 15 14 13 12 11 10 9 DA-2
24 23 22 21 20 19 18 17 DA-3
32 31 30 29 28 27 26 25 DA-4
40 39 38 37 36 35 34 33 DA 5
48 47 46 45 44 43 42 41 DA-6

DA-25 board-component side -
(No. 1-625-486-12 and higher)

1. Adjustment of the output level (DA board)

Measuring instruments
DIGITAL SG-36
Audio level meter
Oscilloscope

Connection



Setting the switch and control
Digital audio channel
MONITOR MODE : INPUT
Toggle switch panel
Sampling frequency : 44.1 kHz
INPUT SELECT : ANALOG
EMPHASIS switch : OFF
ED-1 board
TEST/NORM switch: NORM

Adjusting points
DA board : ⊘RV102, 202, 302, 402, 502, 602, 702 and 802

Adjusting procedure
Install DIGITAL SG-36 instead of the relevant AD board.
Set the switch on DIGITAL SG-36 to "0".
(1kHz, Full scale)
Specification : Digital audio channel output level = +24dBs (12.4V±0.1Vrms)
Adjustment : ⊘RV102, 202, 302, 402, 502, 602, 702 and 802 of the adjusting channel

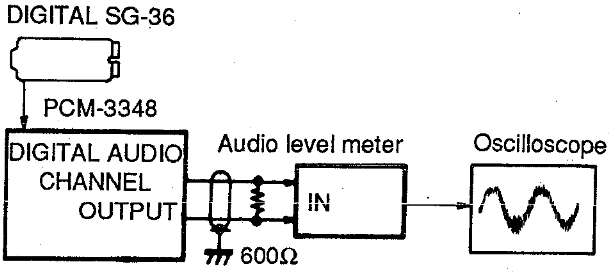
When "2. Linearity adjustment (DA board)" is not performed after this adjustment, remove DIGITAL SG-36 and restore the AD board.

2. Linearity adjustment (DA board)

Since this adjustment is performed to make the noise ratio and the distortion ratio better, perform this adjustment only when the DA board or the AD board is maintained or these ratios are not good.
Perform "1. Adjustment of the output level (DA board)" before this adjustment.

Measuring instruments
DIGITAL SG-36
Audio level meter
Oscilloscope

Connection



Setting the switch and control
Digital audio channel
MONITOR MODE : INPUT
Toggle switch panel
Sampling frequency : 44.1kHz
INPUT SELECT : ANALOG
EMPHASIS switch : OFF
ED-1 board
TEST/NORM switch : NORM

Adjusting points
DA board : ⊘RV101, 201, 301, 401, 501, 601, 701 and 801

Adjusting procedure
Set the switch on DIGITAL SG-36 to "1".
(1kHz, -80dB)
Specification : Digital audio channel output level = 1.24mV±0.07mVrms
Adjustment : ⊘RV101, 201, 301, 401, 501, 601, 701 and 801 of the adjusting channel

Remove DIGITAL SG-36 and restore the AD board after this adjustment.

3. Offset adjustment of the AD converter (AD board)

Measuring instrument
Oscilloscope

Connection
Do not connect the audio signal generator to the digital audio channel input. Or, turn off the signal of the audio signal generator.

Setting the switch and control
Digital audio channel
MONITOR MODE : INPUT
Toggle switch panel
INPUT SELECT : ANALOG
EMPHASIS switch : OFF
ED-1 board
TEST/NORM switch : NORM

Adjusting points
AD-36 board : ⊘RV103, 203, 303, 403, 503, 603, 703 and 803

Adjusting procedure
1) Connect the oscilloscope to the Pin 8 of IC105 (74HC74). (5V/DIV, 100µsec/DIV) Adjust ⊘ RV103 so that only - ∞LED on the digital audio channel level meter lights and that 0V and 5V on the oscilloscope are almost equally indicated. (Refer to Fig. 1, 2 and 3)
2) Connect the oscilloscope to Pin 8 of IC205, 305, 405, 505, 605, 705 and 805, and adjust ⊘RV203, 303, 403, 503, 603, 703 and 803 in the same manner as the above 1).

Fig. 1 Offset adjustment : wrong

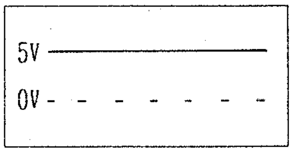


Fig. 2 Offset adjustment : good

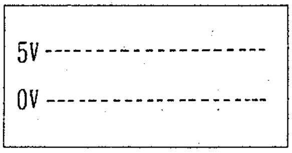
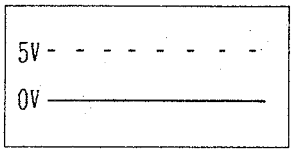


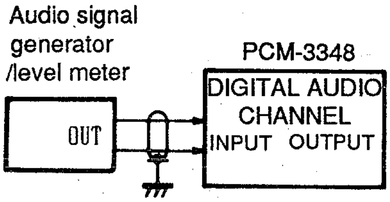
Fig. 3 Offset adjustment : wrong



4. Adjustment of the input level (AD board)

Measuring instrument
Audio signal generator
Audio level meter

Connection



Setting the switch and control
Digital audio channel
MONITOR MODE : INPUT
Toggle switch panel
INPUT SELECT : ANALOG
EMPHASIS SWITCH : OFF
ED-1 board
TEST/NORM switch : NORM
MAE board
METER : CAL

Adjusting points
AD-36 board : RV101, 201, 301, 401, 501, 601, 701 and 801

Adjusting procedure

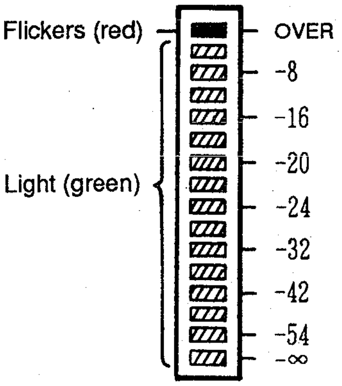
Digital audio channel input level : +24dBs,
(0dBs=0.775V),
1kHz

Specification : OVER (red LED) indication on the digital audio channel level meter flickers.

Adjustment : ⊘RV101, 201, 301, 401, 501, 601, 701 and 801 of the adjusting channel

Note: The above input level is the level set at the factory. However, the maximum level can be changed according to the output level of the signal generator.

Digital audio channel level meter

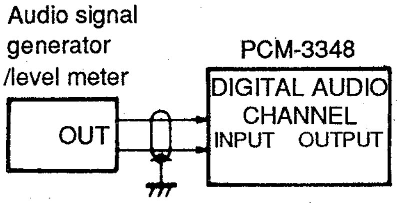

Flickers (red)
Light (green)
OVER
-8
-16
-20
-24
-32
-42
-54
-∞

5. Confirmation of the emphasis function of the AD board

Measuring instrument

Audio signal generator
Audio level meter

Connection


Audio signal generator /level meter
OUT
PCM-3348
DIGITAL AUDIO CHANNEL
INPUT
OUTPUT

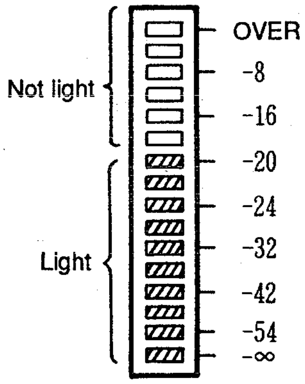
Setting the switch and control

Digital audio channel
MONITOR MODE : INPUT
Toggle switch panel
INPUT SELECT : ANALOG
ED-1 board
TEST/NORM switch : NORM
MAE board
METER : CAL

Adjusting procedure

1) Set the EMPHASIS switch on the toggle switch panel to ON.
2) Digital audio channel input level : +4dBs, (0dBs=0.775V), 1kHz
   Confirm the indication on the digital audio level meter lights till -20dB (green).

Digital audio level meter


OVER
-8
-16
-20
-24
-32
-42
-54
-∞
Not light
Light

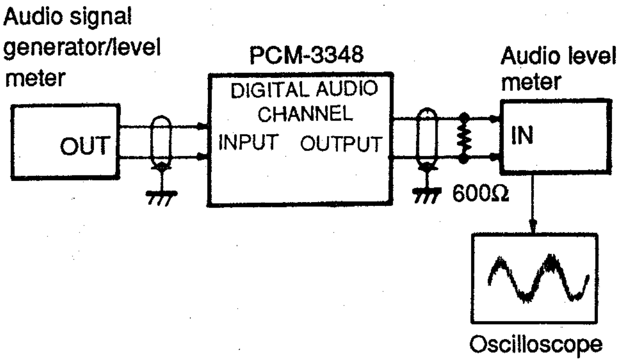
3) Change frequency from 1kHz to 10kHz without changing the input level of the digital audio channel.
Confirm the indication on the digital audio channel level meter lights till -16dB (green).

6. Linearity adjustment (AD board)

Since this adjustment is performed to make the noise ratio and the distortion ratio better, perform this adjustment only when these ratios are not good or the AD board is maintained.
Perform "1. Adjustment of the output level (DA board)", "2. Adjustment of lenearity (DA board)", "3. Offset adjustment of the AD converter" and "4. Adjustment of the input level (AD board)" before this adjustment.
Since this adjustment and "3. Offset adjustment of the AD converter" influence each other, these adjustments must be repeated to satisfy both specifications.

Measuring instrument
Audio signal generator
Audio level meter
Oscilloscope

Connection


Audio signal generator/level meter
OUT
PCM-3348
DIGITAL AUDIO CHANNEL
INPUT
OUTPUT
600Ω
Audio level meter
IN
Oscilloscope

Setting the switch and control
Digital audio channel
MONITOR MODE : INPUT
Toggle switch panel
INPUT SELECT : ANALOG
EMPHASIS switch : OFF
ED-1 board
TEST/NORM switch: NORM

Adjusting points
AD board : ⊘RV102, 202, 302, 402, 502, 602, 702 and 802

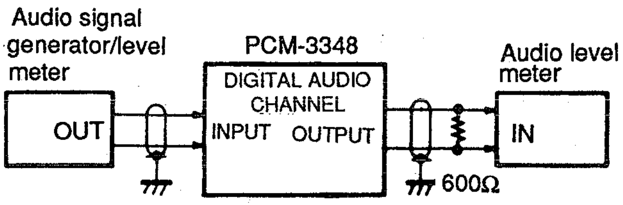
Adjusting procedure
1) Digital audio channel input level: +24dBs, (0dBs=0.775V), 1kHz
Confirm that the channel output level is +24dBs.
2) Set only the digital audio channel input level to -56dBs.
Specification : Digital audio channel output level = -56dBs±0.2dB
Adjustment : ⊘RV102, 202, 302, 402, 502, 602, 702 and 802 of the adjusting channel

7. Confirmation of noise ratio

Perform this adjustment after "1. Adjustment of the output level" and "4. Adjustment of the input level".

Measuring instrument
Audio signal generator
Audio level meter

Connection


Audio signal generator/level meter
OUT
PCM-3348
DIGITAL AUDIO CHANNEL
INPUT
OUTPUT
600Ω
Audio level meter
IN

Note: Measure only the 30kHz and lower level ranges with the level meter.

Setting the switch and control

Digital audio channel
MONITOR MODE : INPUT
Toggle switch panel
Sampling frequency : 44.1kHz
INPUT SELECT : ANALOG
EMPHASIS switch : ON
ED-1 board
TEST/NORM switch : NORM

Adjusting procedure

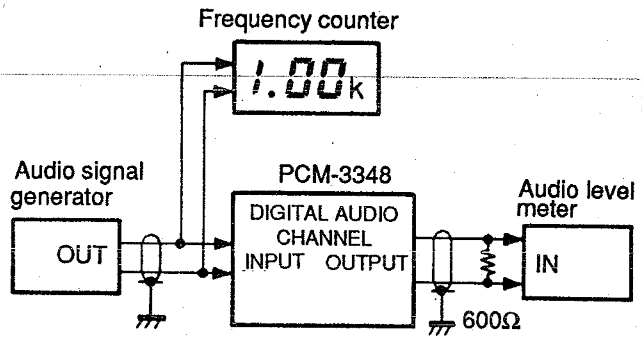
1) Digital audio channel input level : +24dBs, (0dBs=0.775V), 1kHz
   Confirm that the channel output level is +24dBs under this condition.
2) Remove the input and short-circuit HOT and COLD of the input terminal. Then, measure the residual noise level (dBs) on the digital audio channel output.
   Confirm : +24dBs - residual noise level (dBs) > 90dB

8. Confirmation of frequency response

Measuring instrument

Audio signal generator
Audio level meter
Frequency counter

Connection



Setting the switch and control

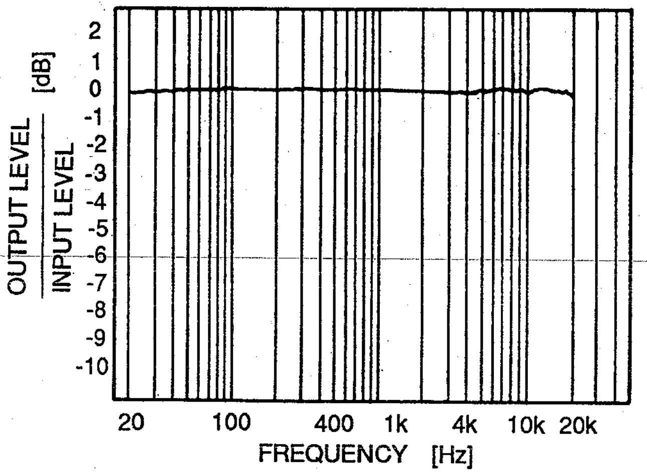
Digital audio channel
MONITOR MODE : INPUT
Toggle switch panel
Sampling frequency : 44.1kHz
INPUT SELECT : ANALOG
ED-1 board
TEST/NORM switch : NORM

Adjusting procedure

When the EMPHASIS switch is OFF,

1) Set the EMPHASIS switch on the toggle switch panel to OFF.
2) Digital audio channel input level : +4dBs, (0dBs=0.775V), 1kHz
   Measure the channel output level under this condition to set the measured level as the output reference level.
3) Change only the digital audio channel input frequency as follows, and measure the corresponding output levels.

Input frequency : 20, 100, 7k, 15k, 20k (Hz)
Confirm : 20Hz - 20kHz output level to the reference output level within +0.5/-1.0dB



When the EMPHASIS switch is ON,

1) Set the EMPHASIS switch of the toggle switch panel to ON.
2) same as the step 2) of the above
3) same as the step 3) of the above

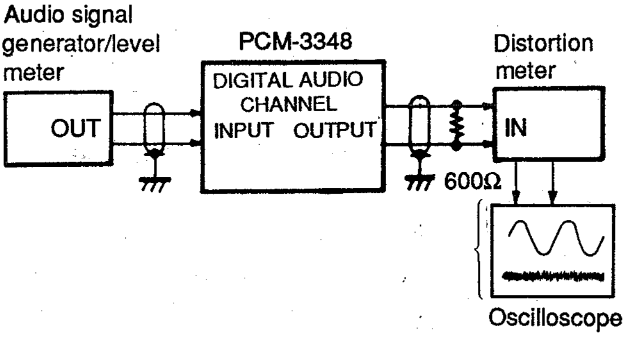
Input frequency : 20, 100, 7k, 15k, 20k (Hz)
Confirm : 20Hz - 20kHz output level to the reference output level within +0.5/-1.0dB

9. Confirmation of distortion ratio

Measuring instrument

Audio signal generator
Audio level meter
Distortion meter
Oscilloscope

Connection



Setting the switch and control

Digital audio channel
MONITOR MODE : INPUT
Toggle switch panel
Sampling frequency : 44.1kHz
INPUT SELECT : ANALOG
ED-1 board
TEST/NORM switch : NORM

Adjusting procedure

When the EMPHASIS switch is OFF,

1) Set the EMPHASIS switch on the toggle switch panel to OFF.
2) Change the frequency to 400Hz, 1kHz, and 20kHz under the digital audio channel input level +4dBs, (0dBs=0.775V), and measure the distortion ratio of each frequency at the channel output.
   Confirm : distortion ratio < 0.1%
3) Change the frequency to 400Hz, 1kHz and 20kHz under the digital audio channel input level +23.5dBs, and measure the distortion ratio of each frequency at the channel output.
   Confirm : ditortion ratio < 0.1%

When the EMPHASIS switch is ON,

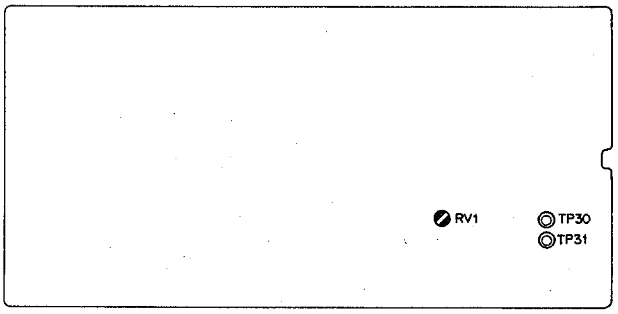
1) Set the EMPHASIS switch of the toggle switch panel to ON.
2) Change the frequency to 400Hz, 1kHz, and 20kHz under the digital audio channel input level +4dBs, (0dBs=0.775V), and measure the distortion ratio of each frequency at the channel output.
   Confirm : distortion ratio < 0.1%

6-7. ADJUSTMENT OF THE TIME CODE

Adjustment of the TC-50 board

Perform the following adjustment when repairing or replacing the TC-50 board, or when adjusting the level of the external equipment connected.

Adjusting points



TC-50 board - component side -
(No. 1-627-114-11/-12)

1. Adjustment of the time code output level

Measuring instrument

Oscilloscope
INPUT : DC

Setting the switch and control

Set the operation mode to INT GENERATOR FREE RUN.

Adjusting point

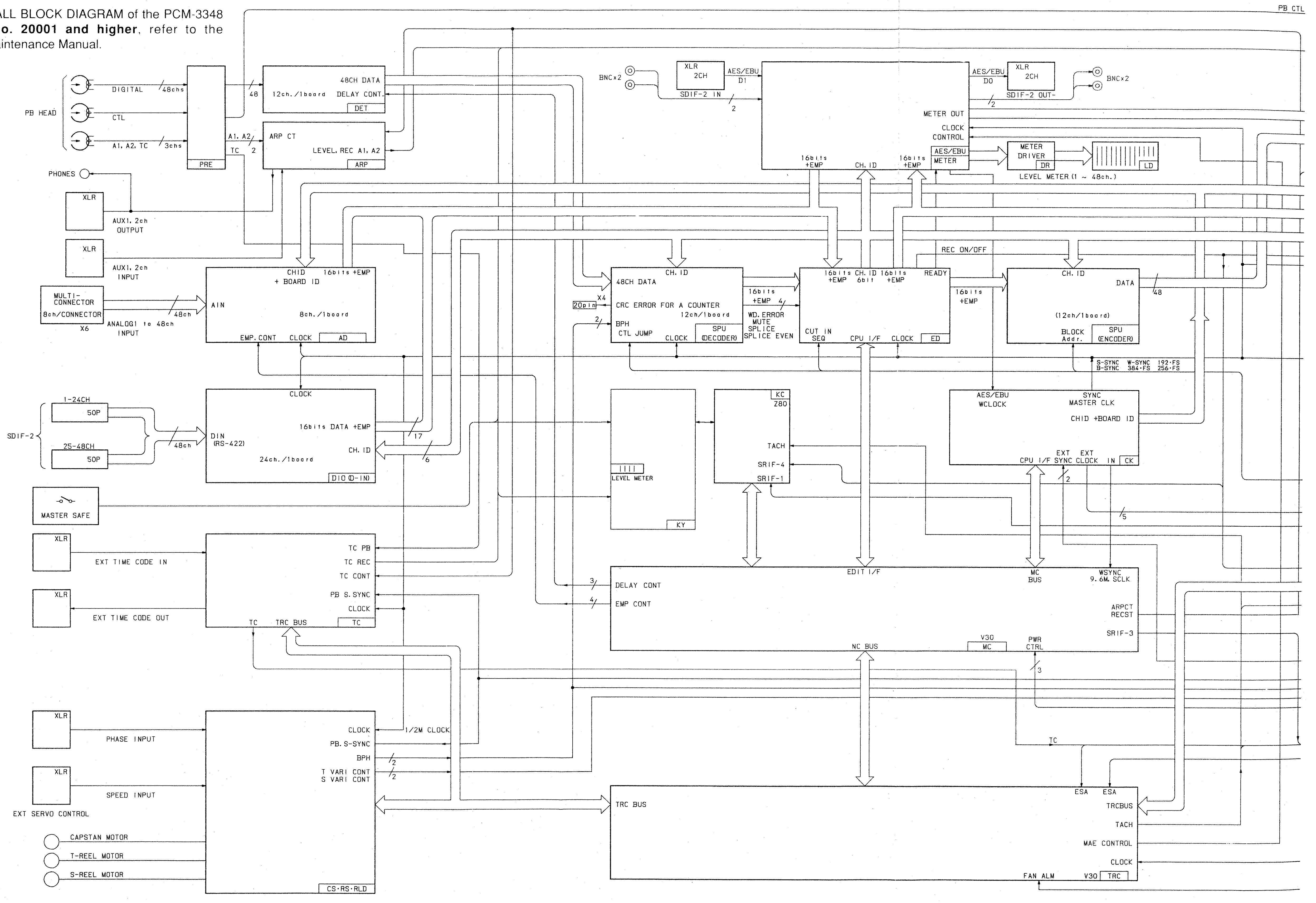
⊘RV1

Adjusting procedure

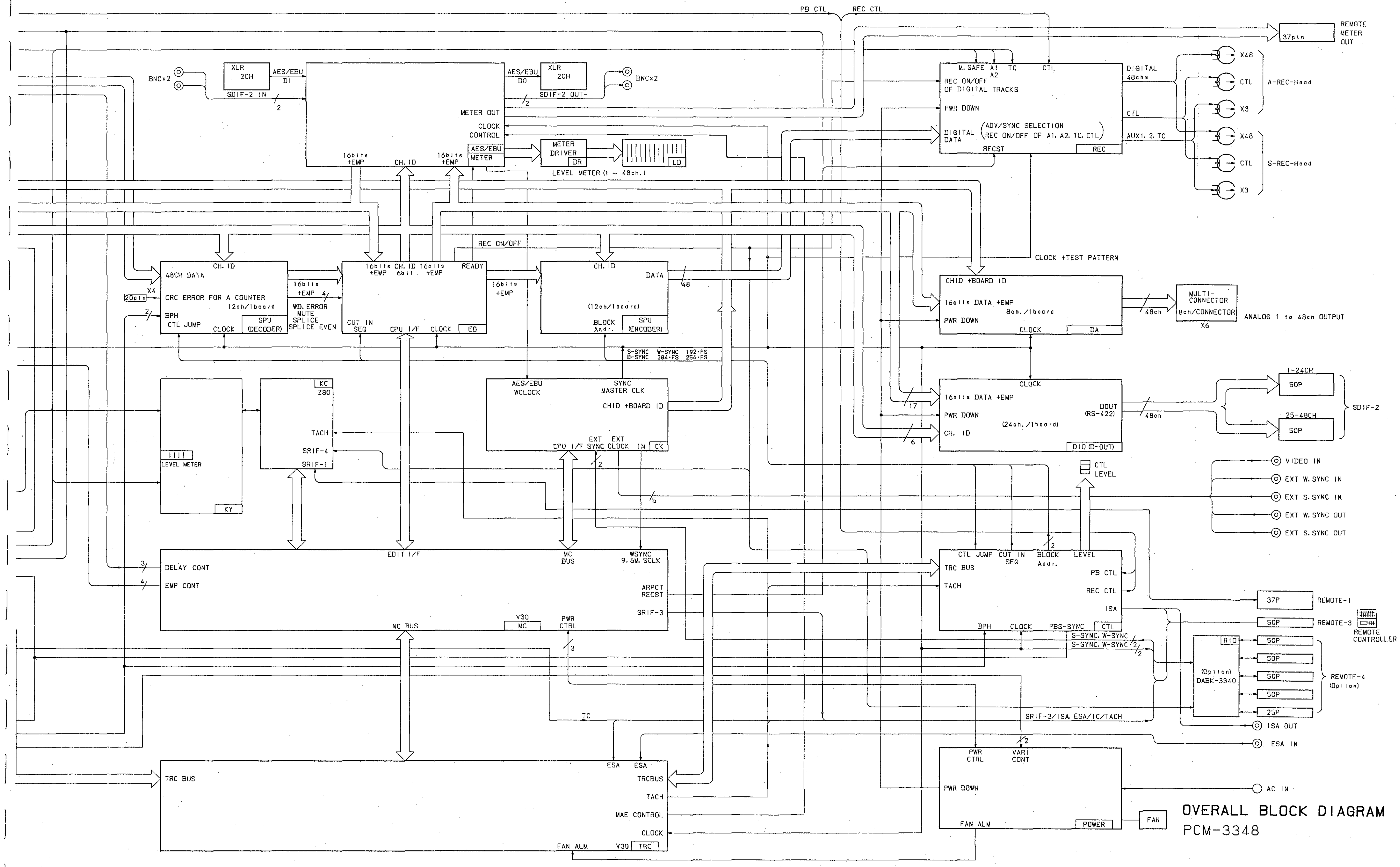
Connect the probes of CH1 and CH2 of the oscilloscope to TP30 and TP31, respectively.
Set the CH2 mode to INVERT, ADD mode so as to locate the mixed waveform in the center of the screen surface.
Adjust RV1 so that the mixed waveform is 2.4Vp-p ±0.1V.
When adjusting to the level of the external equipment, the variable range will be within 1.8V to 3.4Vp-p.

SECTION A
BLOCK DIAGRAM AND THEORY OF OPERATION

NOTE: For the OVERALL BLOCK DIAGRAM of the PCM-3348 with **Serial No. 20001 and higher**, refer to the DABK-3341 Maintenance Manual.


PB CTL
PB HEAD
DIGITAL
48chs
CTL
A1, A2, TC
3chs
PRE
48
48CH DATA
12ch./1board
DELAY CONT.
DET
A1, A2
TC
2
ARP CT
LEVEL, REC A1, A2
ARP
PHONES
XLR
AUX1, 2ch OUTPUT
XLR
AUX1, 2ch INPUT
MULTI-CONNECTOR
8ch/CONNECTOR
X6
ANALOG1 to 48ch INPUT
48ch
AIN
CHID + BOARD ID
16bits +EMP
8ch./1board
EMP. CONT
CLOCK
AD
BNC×2
XLR 2CH
AES/EBU DI
SDIF-2 IN
2
METER OUT
CLOCK CONTROL
AES/EBU
METER
16bits +EMP
CH. ID
16bits +EMP
AES/EBU DO
XLR 2CH
SDIF-2 OUT-
2
BNC×2
METER DRIVER
DR
LD
LEVEL METER (1 ~ 48ch.)
REC ON/OFF
48CH DATA
CH. ID
X4
20pin
CRC ERROR FOR A COUNTER
12ch/1board
2
BPH
CTL JUMP
CLOCK
SPU (DECODER)
16bits +EMP
4
WD. ERROR
MUTE
SPLICE
SPLICE EVEN
16bits +EMP
CH. ID 6bit
16bits +EMP
READY
CUT IN SEQ
CPU I/F
CLOCK
ED
16bits +EMP
CH. ID
DATA
48
(12ch/1board)
BLOCK Addr.
SPU (ENCODER)
S-SYNC B-SYNC
W-SYNC 384·FS
192·FS 256·FS
CLOCK
1-24CH
50P
SDIF-2
25-48CH
50P
48ch
DIN (RS-422)
16bits DATA +EMP
CH. ID
24ch./1board
17
6
DIO (D-IN)
LEVEL METER
KY
KC
Z80
TACH
SRIF-4
SRIF-1
AES/EBU WCLOCK
SYNC MASTER CLK
CHID +BOARD ID
EXT
EXT
CPU I/F SYNC CLOCK IN
CK
2
5
MASTER SAFE
XLR
EXT TIME CODE IN
XLR
EXT TIME CODE OUT
TC PB
TC REC
TC CONT
PB S. SYNC
CLOCK
TC
TRC BUS
TC
EDIT I/F
MC BUS
WSYNC 9.6M. SCLK
3
DELAY CONT
4
EMP CONT
ARPCT RECST
SRIF-3
NC BUS
V30
MC
PWR CTRL
3
XLR
PHASE INPUT
XLR
SPEED INPUT
EXT SERVO CONTROL
CAPSTAN MOTOR
T-REEL MOTOR
S-REEL MOTOR
CLOCK
1/2M CLOCK
PB. S-SYNC
BPH
T VARI CONT
S VARI CONT
2
2
CS·RS·RLD
TC
TRC BUS
ESA
ESA
TRCBUS
TACH
MAE CONTROL
CLOCK
FAN ALM
V30
TRC

ION


PB CTL
REC CTL
37pin
REMOTE METER OUT
BNC×2
XLR 2CH
AES/EBU DI
SDIF-2 IN
2
AES/EBU DO
XLR 2CH
SDIF-2 OUT
2
BNC×2
METER OUT
CLOCK CONTROL
16bits +EMP
CH. ID
16bits +EMP
AES/EBU METER
METER DRIVER
DR
LD
LEVEL METER (1 ~ 48ch.)
M. SAFE
A1 A2
TC
CTL
REC ON/OFF OF DIGITAL TRACKS
PWR DOWN
DIGITAL DATA
(ADV/SYNC SELECTION REC ON/OFF OF A1, A2, TC, CTL)
RECST
REC
DIGITAL 48chs
CTL
AUX1, 2, TC
X48
CTL
X3
A-REC-Head
X48
CTL
X3
S-REC-Head
CLOCK +TEST PATTERN
REC ON/OFF
CH. ID
48CH DATA
CRC ERROR FOR A COUNTER
12ch/1board
X4
20pin
BPH
CTL JUMP
CLOCK
SPU (DECODER)
16bits +EMP
4
WD. ERROR MUTE SPLICE SPLICE EVEN
16bits +EMP
CH. ID 6bit
16bits +EMP
READY
CUT IN SEQ
CPU I/F
CLOCK
ED
16bits +EMP
CH. ID
DATA
48
(12ch/1board)
BLOCK Addr.
SPU (ENCODER)
CHID +BOARD ID
16bits DATA +EMP
8ch./1board
PWR DOWN
CLOCK
DA
48ch
MULTI-CONNECTOR
8ch/CONNECTOR
X6
ANALOG 1 to 48ch OUTPUT
S-SYNC W-SYNC 192·FS
B-SYNC 384·FS 256·FS
AES/EBU WCLOCK
SYNC MASTER CLK
CHID +BOARD ID
EXT SYNC
EXT CLOCK
CPU I/F
IN
CK
2
KC
Z80
TACH
SRIF-4
SRIF-1
LEVEL METER
KY
CLOCK
16bits DATA +EMP
PWR DOWN
CH. ID
17
6
DOUT (RS-422)
(24ch./1board)
DIO (D-OUT)
48ch
1-24CH
50P
25-48CH
50P
SDIF-2
CTL LEVEL
VIDEO IN
EXT W. SYNC IN
EXT S. SYNC IN
EXT W. SYNC OUT
EXT S. SYNC OUT
5
EDIT I/F
MC BUS
WSYNC 9.6M, SCLK
3
DELAY CONT
4
EMP CONT
ARPCT RECST
SRIF-3
NC BUS
V30 MC
PWR CTRL
3
CTL JUMP
CUT IN SEQ
BLOCK Addr.
2
LEVEL
TRC BUS
PB CTL
TACH
REC CTL
ISA
BPH
CLOCK
PBS-SYNC
CTL
S-SYNC, W-SYNC
S-SYNC, W-SYNC
2
2
37P
REMOTE-1
50P
REMOTE-3
REMOTE CONTROLLER
RIO
(Option) DABK-3340
50P
50P
50P
50P
25P
REMOTE-4 (Option)
TC
SRIF-3/ISA, ESA/TC/TACH
ISA OUT
ESA IN
2
ESA
ESA
TRC BUS
TRCBUS
TACH
MAE CONTROL
CLOCK
FAN ALM
V30
TRC
PWR CTRL
VARI CONT
PWR DOWN
FAN ALM
POWER
FAN
AC IN

OVERALL BLOCK DIAGRAM
PCM-3348

AD-36 BOARD

[Outline]

The AD-36 boards perform analog processing and A/D conversion for audio input signals, outputting 16-bit PCM data with channel time division. Eight channels are processed on one board and a total of 48 channels are processed with 6 boards, which are completely the same except the basic panel. They are distinguished only by address signals (BIDn) supplied.

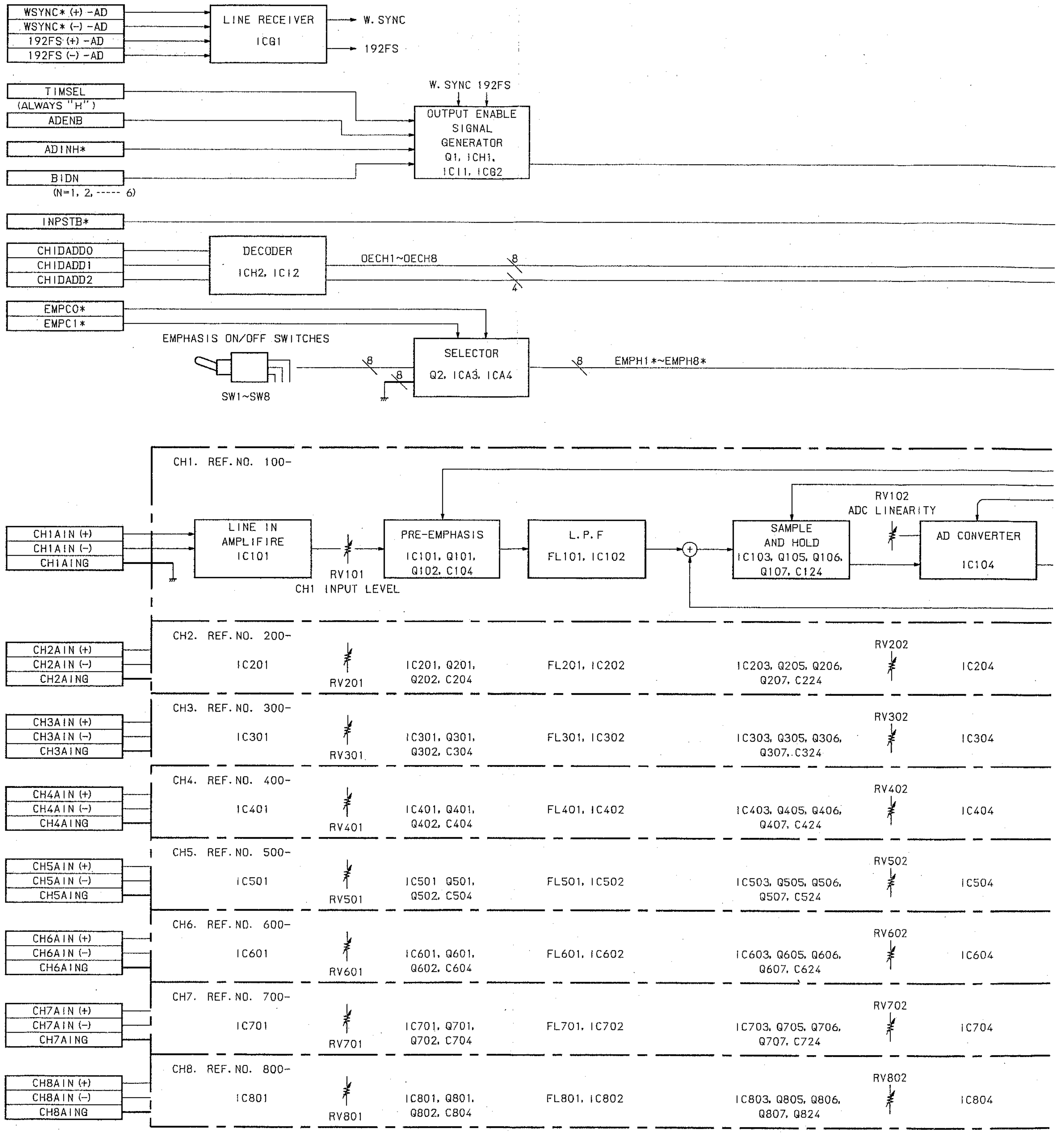
[Block description]

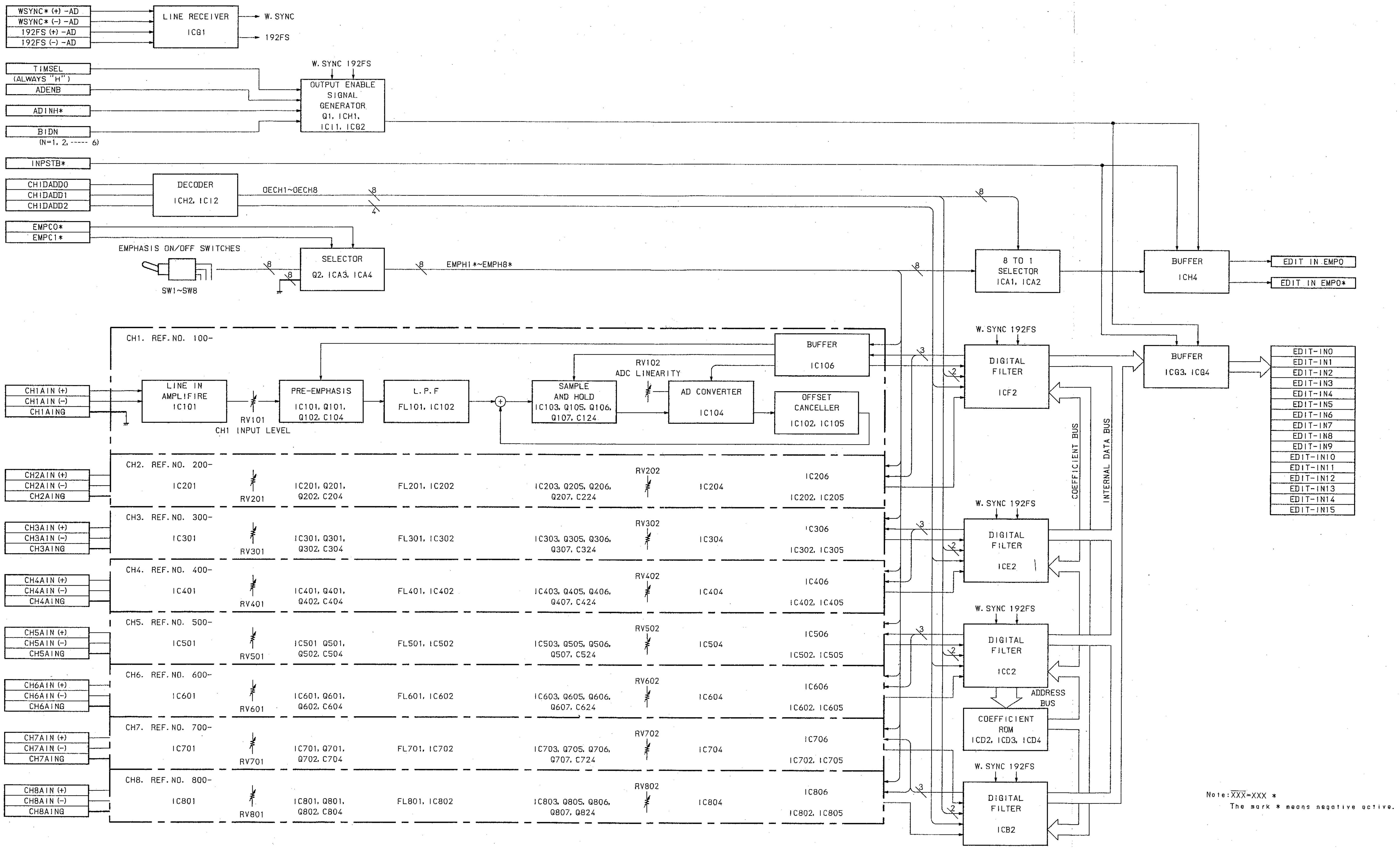
1. Analog processing block
Since the same circuits are provided for each of the eight channels, only the circuit for channel 1 is described here. The incoming audio signals are converted from balanced signals to unbalanced signals by a differential amplifier (pins 1, 2 and 3 of IC101). The gain is adjusted at RV101 and the signals are input to the pre-emphasis circuit (pins 5, 6 and 7 of IC101). The pre-emphasis can be turned on and off and its time constant is 50 µsec or 15 µsec. An FET (Q102) is used for the switch and level shift is performed at a transistor (Q101) to control the gate voltage.
The low-pass filter circuit (pins 1, 2, 3 side of FL101 and IC102) has the pass band between 0 and 25 kHz and the stop band of higher than 58 kHz and cuts the band components over fs x 2/3 of the input signals.
The sample hold circuit (IC103, Q105, Q106, Q107) holds the signals during A/D conversion. Q105 functions as the switch for sampling and holding. Level shift of the gate voltage is performed at D105. Q106 and Q107 are buffers.
IC104 is an A/D conversion IC of the successive comparison type. It quantizes input signals to 16-bit serial data at the rate doubling fs.
Pins 5, 6, 7 sides of IC105 and IC102 are the circuits to cancel the A/D conversion offset by performing D/A conversion of only the MSB of the signals converted from analog to digital and feeding it back through the low-pass filter.
Timing signals to drive the A/D conversion IC and the sample hold circuit are supplied to each block via the IC106 buffer from the digital filter IC (ICF2, etc.).

2. Digital block
16-bit serial PCM data converted at A/D conversion IC (IC104) are input to the digital filters (ICB2, C2, E2, F2) via buffers.
The digital filters process 2 channels each. They cut the band components from 1/2 fs to 3/2 fs with filter operation for input data and perform data decimation, converting the data rate from a value 2-times fs into a value of fs.
The output data is supplied as 16-bit parallel signals. With output control process at ICG3 and ICG4, the data are output from the boards as a bus.
BID, INPSTB*, AD-ENB and AD-INH* are the control signals for this. The latter two are once latched with the timing generated at ICH1 for shaping.

An emphasis control signal consists of 2 bits which define the logic as shown in the table below. The defined emphasis flag is output as time division data with the same timing as the data bus timing.

EMPC 0*	EMPC 1*	EMPHASIS	Emphasis condition
H	H	all ON	All channels ON regardless of the switch settings on the board.
H	L	INDIVIDUAL	Correspond to the switch settings on the board.
L	H	all OFF	All channels OFF regardless of the switch settings on the board.
L	L		


WSYNC* (+) -AD
WSYNC* (-) -AD
192FS (+) -AD
192FS (-) -AD
LINE RECEIVER
ICG1
W. SYNC
192FS
TIMSEL
(ALWAYS "H")
ADENB
ADINH*
BIDN
(N=1, 2, ----- 6)
W. SYNC 192FS
OUTPUT ENABLE SIGNAL GENERATOR
Q1, ICH1, ICI1, ICG2
INPSTB*
CHIDADD0
CHIDADD1
CHIDADD2
DECODER
ICH2, ICI2
OECH1~OECH8
8
4
EMPC0*
EMPC1*
EMPHASIS ON/OFF SWITCHES
SW1~SW8
8
8
SELECTOR
Q2, ICA3, ICA4
8
EMPH1*~EMPH8*
CH1. REF.NO. 100-
CH1AIN (+)
CH1AIN (-)
CH1AING
LINE IN AMPLIFIRE
IC101
RV101
CH1 INPUT LEVEL
PRE-EMPHASIS
IC101, Q101, Q102, C104
L.P.F
FL101, IC102
+
SAMPLE AND HOLD
IC103, Q105, Q106, Q107, C124
RV102
ADC LINEARITY
AD CONVERTER
IC104
CH2. REF.NO. 200-
CH2AIN (+)
CH2AIN (-)
CH2AING
IC201
RV201
IC201, Q201, Q202, C204
FL201, IC202
IC203, Q205, Q206, Q207, C224
RV202
IC204
CH3. REF.NO. 300-
CH3AIN (+)
CH3AIN (-)
CH3AING
IC301
RV301
IC301, Q301, Q302, C304
FL301, IC302
IC303, Q305, Q306, Q307, C324
RV302
IC304
CH4. REF.NO. 400-
CH4AIN (+)
CH4AIN (-)
CH4AING
IC401
RV401
IC401, Q401, Q402, C404
FL401, IC402
IC403, Q405, Q406, Q407, C424
RV402
IC404
CH5. REF.NO. 500-
CH5AIN (+)
CH5AIN (-)
CH5AING
IC501
RV501
IC501 Q501, Q502, C504
FL501, IC502
IC503, Q505, Q506, Q507, C524
RV502
IC504
CH6. REF.NO. 600-
CH6AIN (+)
CH6AIN (-)
CH6AING
IC601
RV601
IC601, Q601, Q602, C604
FL601, IC602
IC603, Q605, Q606, Q607, C624
RV602
IC604
CH7. REF.NO. 700-
CH7AIN (+)
CH7AIN (-)
CH7AING
IC701
RV701
IC701, Q701, Q702, C704
FL701, IC702
IC703, Q705, Q706, Q707, C724
RV702
IC704
CH8. REF.NO. 800-
CH8AIN (+)
CH8AIN (-)
CH8AING
IC801
RV801
IC801, Q801, Q802, C804
FL801, IC802
IC803, Q805, Q806, Q807, Q824
RV802
IC804


WSYNC* (+) -AD
WSYNC* (-) -AD
192FS (+) -AD
192FS (-) -AD
LINE RECEIVER
ICG1
W. SYNC
192FS
TIMSEL
(ALWAYS "H")
ADENB
ADINH*
BIDN
(N=1, 2, ----- 6)
W. SYNC 192FS
OUTPUT ENABLE
SIGNAL
GENERATOR
Q1, ICH1,
IC11, ICG2
INPSTB*
CHIDADD0
CHIDADD1
CHIDADD2
DECODER
ICH2, IC12
OECH1~OECH8
8
4
EMPC0*
EMPC1*
EMPHASIS ON/OFF SWITCHES
SW1~SW8
SELECTOR
Q2, ICA3, ICA4
8
EMPH1*~EMPH8*
8 TO 1
SELECTOR
ICA1, ICA2
BUFFER
ICH4
EDIT IN EMP0
EDIT IN EMP0*
CH1. REF. NO. 100-
CH1AIN (+)
CH1AIN (-)
CH1AING
LINE IN
AMPLIFIRE
IC101
RV101
CH1 INPUT LEVEL
PRE-EMPHASIS
IC101, Q101,
Q102, C104
L.P.F
FL101, IC102
SAMPLE
AND HOLD
IC103, Q105, Q106,
Q107, C124
RV102
ADC LINEARITY
AD CONVERTER
IC104
BUFFER
IC106
OFFSET
CANCELLER
IC102, IC105
CH2. REF. NO. 200-
CH2AIN (+)
CH2AIN (-)
CH2AING
IC201
RV201
IC201, Q201,
Q202, C204
FL201, IC202
IC203, Q205, Q206,
Q207, C224
RV202
IC204
IC206
IC202, IC205
CH3. REF. NO. 300-
CH3AIN (+)
CH3AIN (-)
CH3AING
IC301
RV301
IC301, Q301,
Q302, C304
FL301, IC302
IC303, Q305, Q306,
Q307, C324
RV302
IC304
IC306
IC302, IC305
CH4. REF. NO. 400-
CH4AIN (+)
CH4AIN (-)
CH4AING
IC401
RV401
IC401, Q401,
Q402, C404
FL401, IC402
IC403, Q405, Q406,
Q407, C424
RV402
IC404
IC406
IC402, IC405
CH5. REF. NO. 500-
CH5AIN (+)
CH5AIN (-)
CH5AING
IC501
RV501
IC501 Q501,
Q502, C504
FL501, IC502
IC503, Q505, Q506,
Q507, C524
RV502
IC504
IC506
IC502, IC505
CH6. REF. NO. 600-
CH6AIN (+)
CH6AIN (-)
CH6AING
IC601
RV601
IC601, Q601,
Q602, C604
FL601, IC602
IC603, Q605, Q606,
Q607, C624
RV602
IC604
IC606
IC602, IC605
CH7. REF. NO. 700-
CH7AIN (+)
CH7AIN (-)
CH7AING
IC701
RV701
IC701, Q701,
Q702, C704
FL701, IC702
IC703, Q705, Q706,
Q707, C724
RV702
IC704
IC706
IC702, IC705
CH8. REF. NO. 800-
CH8AIN (+)
CH8AIN (-)
CH8AING
IC801
RV801
IC801, Q801,
Q802, C804
FL801, IC802
IC803, Q805, Q806,
Q807, Q824
RV802
IC804
IC806
IC802, IC805
W. SYNC 192FS
DIGITAL
FILTER
ICF2
W. SYNC 192FS
DIGITAL
FILTER
ICE2
W. SYNC 192FS
DIGITAL
FILTER
ICC2
ADDRESS
BUS
COEFFICIENT
ROM
ICD2, ICD3, ICD4
W. SYNC 192FS
DIGITAL
FILTER
ICB2
3
2
COEFFICIENT BUS
INTERNAL DATA BUS
BUFFER
ICG3, ICG4
EDIT-IN0
EDIT-IN1
EDIT-IN2
EDIT-IN3
EDIT-IN4
EDIT-IN5
EDIT-IN6
EDIT-IN7
EDIT-IN8
EDIT-IN9
EDIT-IN10
EDIT-IN11
EDIT-IN12
EDIT-IN13
EDIT-IN14
EDIT-IN15

Note: $\overline{\text{XXX}}$=XXX *
The mark * means negative active.

AD-36 BOARD BLOCK DIAGRAM

PCM-3348

ARP-2 BOARD

[Outline]

The circuits on the board are chiefly composed of the following five blocks.

1. DELAY circuit
2. PWM MODULATION circuit
3. PB EQUALIZER and PB MUTE circuits
4. PB EQUALIZER CONTROL circuit
5. Other circuits

With the recording system, line input audio signals pass through a line input amplifier and then a compressor having a compression ratio of 1/2, and enter a delay circuit.
In the delay circuit, the audio signals are converted into 8-bit digital data by an A/D converter. After being delayed for 232 blocks (58 msec when Fs = 48 kHz), the data are returned to the original audio signals by a D/A converter.
After passing through the delay circuit, the audio signals pass a pre-emphasis circuit (T_L = 50 µsec, T_H = 150 µsec). After amplitude limiting by a limitter, the signals are pulse-modulated by the PWM MODULATION circuit and supplied to the REC-5 board as balanced output. And the signals are recorded directly from the REC-5 board by the digital REC head.

For the playback system, this ARP-2 board and the PRE-1 board employ the BIAS playback system in addition to the PWM playback system in consideration of the compatibility with tapes recorded in the BIAS recording format.

With the PWM playback system, playback signals amplified by the PWM system amplifier on the PRE-1 board enter the PB EQUALIZER circuit for waveform shaping. Then, while the signal passes through the fixed L.P.F. and S.C.P, its carrier components are deleted, demodulating the signal into the original audio signals. Passing through a de-emphasis circuit, the signals are delayed for 256 blocks (64 msec when Fs = 48 kHz) by the delay circuit.
Except for the Playback mode, this delay circuit is bypassed and the PB NO DELAY signals are selected for the PREPRO signals. When operated by hand, the playback signals bypass the delay circuit. They are doubly expanded by an expander and output to the LINE OUT amplifier.
The VR-75 board (Volume board) and A1, A2 level indicators on the KY-143 board.
The VR-75 board output enters the headphones amplifier and is supplied to the JK-23 board (Headphones jack).

With the BIAS playback system, playback signals first pass through the BIAS system amplifier in the PRE-1 board. Then they pass the BIAS playback system and are output in the same manner as in the PWM system after bypassing the de-emphasis and the expander circuits.

[Block description]

1. DELAY circuit

This circuit consists of an A/D converter, a D/A converter, a low-pass filter, a sample/hold block, an S-RAM and an adder.
First, high-speed sampling of A2CH REC and PB 4-channel data is performed by the FLASH type A/D converter.
Write addresses of the S-RAM are generated by the Address counter. Read addresses are generated by adding OFFSET to the write addresses using the adder. The data is output through the respective delay systems in the RAM with 4-channel time dividing process.
REC data is delayed for 232 blocks (equivalent to the ENCODE time of digital data) to keep it in line with digital data.
PB data is delayed for 256 blocks (equivalent to the DECODE time of digital data).
Since this delay time is an integral multiple of Fs, the in-line condition is always ensured regardless of Fs (48 kHz, 44.1 kHz or 44.056 kHz) and the variable pitch.
When playback is operated by hand, the delay circuit is bypassed and the handcut point will be positioned at the digital PB head.

2. PWM MODULATION circuit

To record and reproduce analog signals with a digital head, PWM (pulse width modulation), a kind of pulse modulation, is performed in this circuit.
This circuit consists of a comparator and a RAMP generator having an analog switch, a constant current circuit and an integrator. Modulated waves are obtained by comparing audio signals with RAMP waves in the comparator. Thus, the modulation factor depends on the amplitude ratio of the RAP waves to the audio signals.
The carrier frequency is the double value of Fs (carrier 96 kHz when Fs = 48 kHz).

3. PB EQUALIZER and PB MUTE circuits

The PB EQUALIZER circuit consists of a normal equalizer, a slow equalizer, a fast equalizer, a carrier selector to switch the equalizer outputs and a drop-out detector.
The normal equalizer consists of a circuit combining the H.P.F. (Differentiator) and the L.P.F1 (Integrator) and the COMPARATOR 1, extracting playback waveforms in PB mode.
The slow equalizer consists of the L.P.F.2 (CUT-OFF 2 kHz) and the COMPARATOR 2. A hysteresis is provided for the switching timing of the slow equalizer and the normal equalizer, and playback waveforms are extracted at a speed slower than 1/2 normal speed in speed-up operations and at a speed slower than 1/3 normal speed in speed-down operations.
The fast equalizer is a circuit where the buffer gain in the first stage is decreased to one fifth and the H.P.F. CUTOFF frequency of the normal equalizer is shifted from 400 kHz to 1.5 MHz. A hysteresis is provided also for the switching timing of the normal equalizer and the fast equalizer, and playback waveforms are extracted in the equalizer at a speed slower than 1.4 times normal speed in speed-up operations and at a speed slower than the normal speed in speed-down operations.
Then, the DROP OUT DETECTOR circuit applies half-wave rectification to the RF waves which have passed through the L.P.F.2 of the slow equalizer. And then, the circuit passes the waves through the L.P.F. for envelope wave detection, thus obtaining an RF level. If the RF level decreases to a value lower than the reference voltage value due to a drop out, etc., muting is activated. This reference voltage value is set around the center of the RF level (4 Volts) in PB mode. In other modes, it is set to the RF level at the 1/50 normal speed (1 volt).
Beside the above case due to a drop-out, the PB muting is activated when the tape is separated from the head (HEAD TOUCH) or when the playback speed is decreased to a speed slower than the 1/25 normal speed. For the switching element, an FET is used. Soft muting is performed by controlling the gate voltage of the FET with a time constant.

4. PR EQUALIZER CONTROL circuit

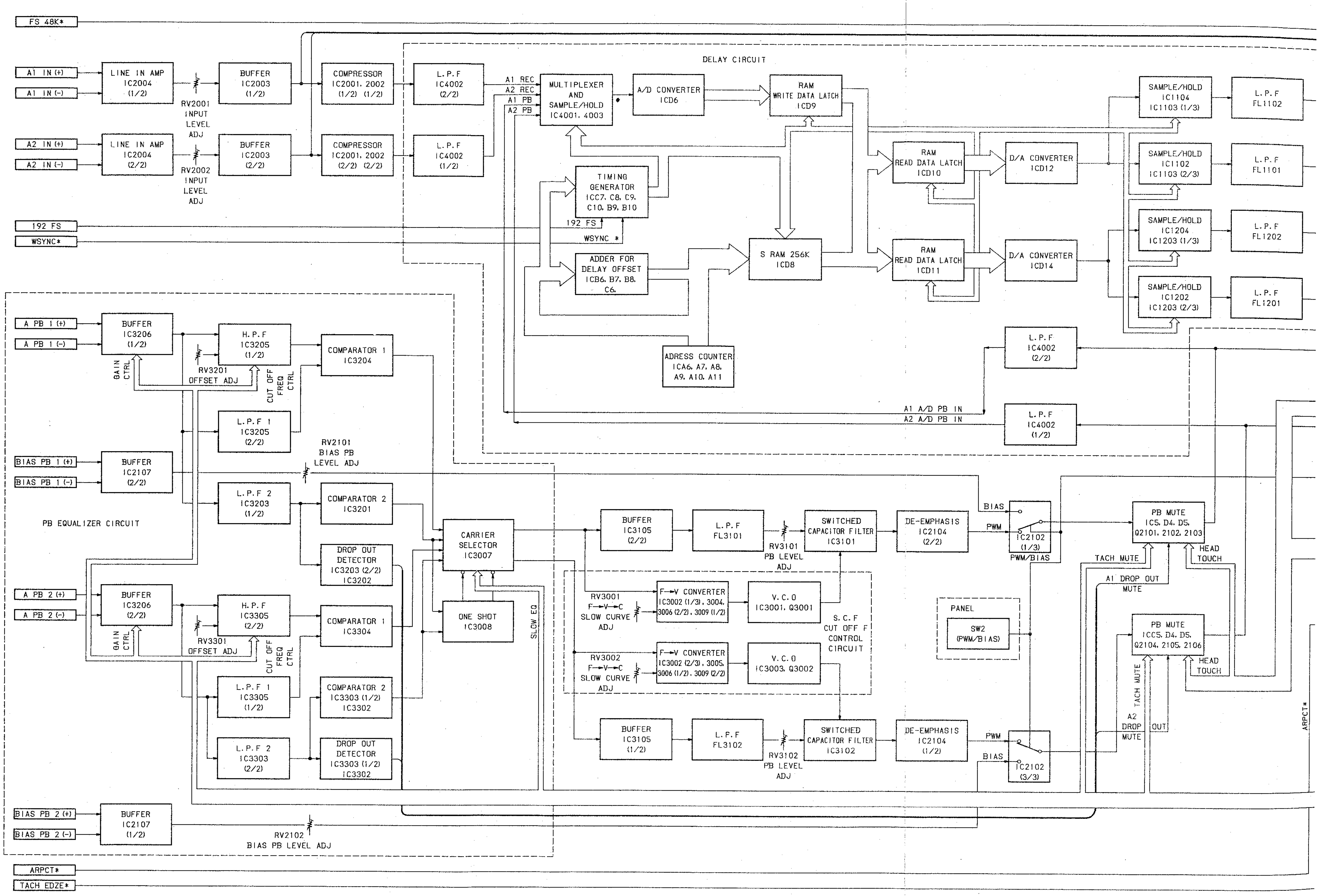
This circuit generates the switching timing of the previously described PB equalizers and the TACH MUTE timing (at playback speeds slower than the 1/25 normal speed).
The circuit consists of a tachopulse EDGE detector and an address counter, an ROM and a latch, etc.
The number of 96-kHz square wave pulses between the tachopulse edges determines the speed information or the ROM address data. By feeding back a part of the ROM data, a hysteresis is provided for ROM data changes.

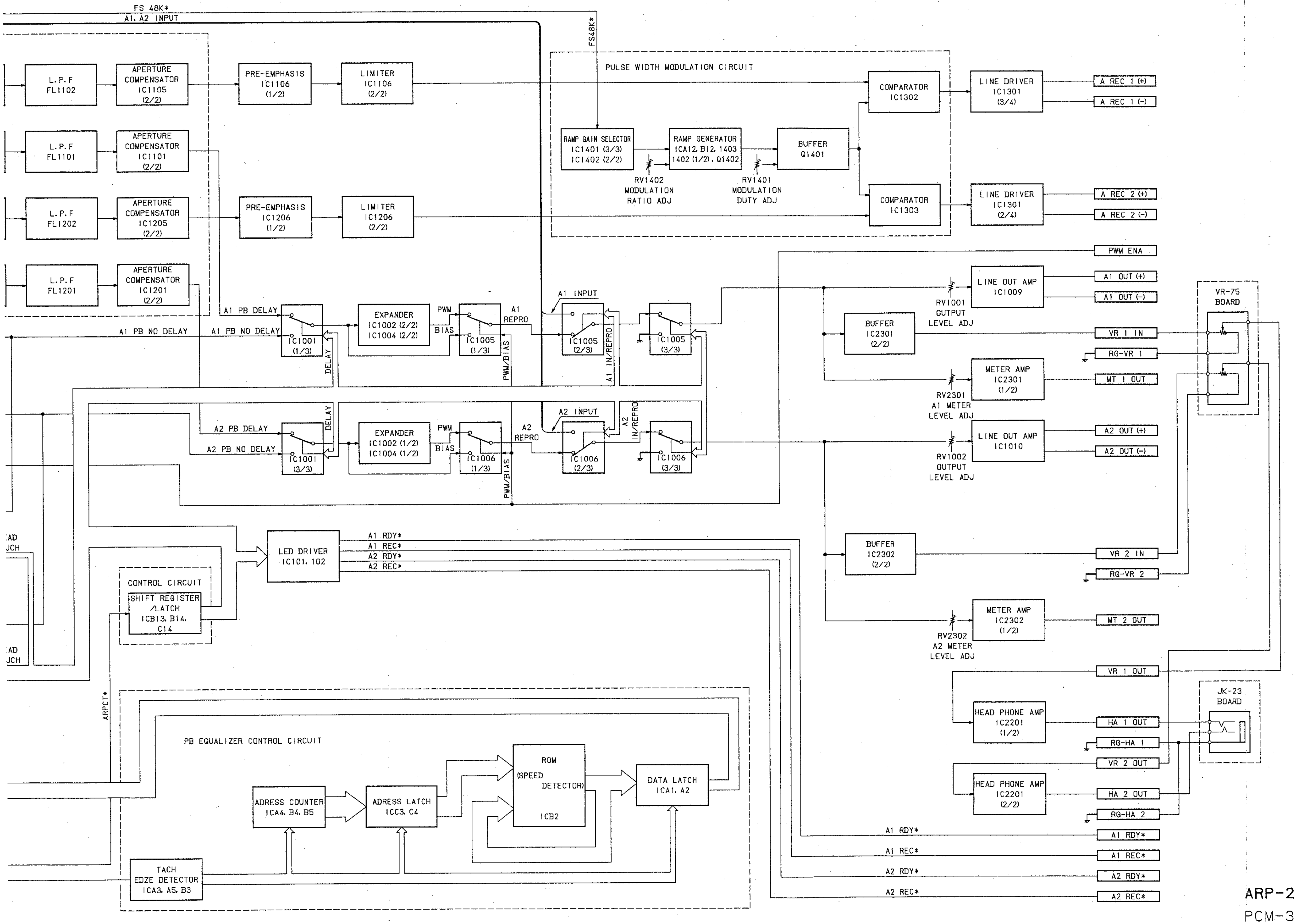
5. Other circuits

Other circuits include the emphasis and de-emphasis circuits (F_L = 500 µsec, F_H = 150 µsec), the compressor (compression ratio 1/2), the expander (expansion ratio 2), the S.C.F., the S.C.F. CUTOFF FREQUENCY CONTROL block, the Control circuit and the LINE OUT amplifier, the METER amplifier and headphones amplifier.
The S.C.F. CUTOFF frequency control block provides a non-linear response to speeds and shifts the CUTOFF frequency (FC) of the S.C.F. according to the tape speed in slow playback, generating a clock (50 times Fc) to eliminate the carriers.
The CONTROL circuit converts 24-bit serial input data called ARPCT* applied from the MC-33 board into parallel data and sets the switches (INPUT/REPRO, MUTE/OFF, DELAY/OFF, etc.) in the board.

BLOCK DIAGRAM ARP-2 (JK-23, VR-75) (CARD RACK)

(CARD RACK)
ARP-2 (JK-23, VR-75) BLOCK DIAGRAM


FS 48K*
A1 IN (+)
A1 IN (-)
LINE IN AMP IC2004 (1/2)
RV2001 INPUT LEVEL ADJ
BUFFER IC2003 (1/2)
COMPRESSOR IC2001, 2002 (1/2) (1/2)
L.P.F IC4002 (2/2)
A2 IN (+)
A2 IN (-)
LINE IN AMP IC2004 (2/2)
RV2002 INPUT LEVEL ADJ
BUFFER IC2003 (2/2)
COMPRESSOR IC2001, 2002 (2/2) (2/2)
L.P.F IC4002 (1/2)
DELAY CIRCUIT
A1 REC
A2 REC
A1 PB
A2 PB
MULTIPLEXER AND SAMPLE/HOLD IC4001, 4003
A/D CONVERTER ICD6
RAM WRITE DATA LATCH ICD9
TIMING GENERATOR ICC7, C8, C9, C10, B9, B10
192 FS
WSYNC *
ADDER FOR DELAY OFFSET ICB6, B7, B8, C6
S RAM 256K ICD8
ADRESS COUNTER ICA6, A7, A8, A9, A10, A11
RAM READ DATA LATCH ICD10
RAM READ DATA LATCH ICD11
D/A CONVERTER ICD12
D/A CONVERTER ICD14
SAMPLE/HOLD IC1104 IC1103 (1/3)
SAMPLE/HOLD IC1102 IC1103 (2/3)
SAMPLE/HOLD IC1204 IC1203 (1/3)
SAMPLE/HOLD IC1202 IC1203 (2/3)
L.P.F FL1102
L.P.F FL1101
L.P.F FL1202
L.P.F FL1201
L.P.F IC4002 (2/2)
L.P.F IC4002 (1/2)
A1 A/D PB IN
A2 A/D PB IN
192 FS
WSYNC*
A PB 1 (+)
A PB 1 (-)
BUFFER IC3206 (1/2)
GAIN CTRL
H.P.F IC3205 (1/2)
RV3201 OFFSET ADJ
CUT OFF FREQ CTRL
COMPARATOR 1 IC3204
L.P.F 1 IC3205 (2/2)
RV2101 BIAS PB LEVEL ADJ
BIAS PB 1 (+)
BIAS PB 1 (-)
BUFFER IC2107 (2/2)
L.P.F 2 IC3203 (1/2)
COMPARATOR 2 IC3201
PB EQUALIZER CIRCUIT
DROP OUT DETECTOR IC3203 (2/2) IC3202
CARRIER SELECTOR IC3007
ONE SHOT IC3008
SLOW EQ
A PB 2 (+)
A PB 2 (-)
BUFFER IC3206 (2/2)
GAIN CTRL
H.P.F IC3305 (2/2)
RV3301 OFFSET ADJ
CUT OFF FREQ CTRL
COMPARATOR 1 IC3304
L.P.F 1 IC3305 (1/2)
COMPARATOR 2 IC3303 (1/2) IC3302
L.P.F 2 IC3303 (2/2)
DROP OUT DETECTOR IC3303 (1/2) IC3302
BIAS PB 2 (+)
BIAS PB 2 (-)
BUFFER IC2107 (1/2)
RV2102 BIAS PB LEVEL ADJ
BUFFER IC3105 (2/2)
L.P.F FL3101
RV3101 PB LEVEL ADJ
SWITCHED CAPACITOR FILTER IC3101
DE-EMPHASIS IC2104 (2/2)
RV3001 F→V→C SLOW CURVE ADJ
F→V CONVERTER IC3002 (1/3), 3004, 3006 (2/2), 3009 (1/2)
V.C.O IC3001, Q3001
S.C.F CUT OFF F CONTROL CIRCUIT
RV3002 F→V→C SLOW CURVE ADJ
F→V CONVERTER IC3002 (2/3), 3005, 3006 (1/2), 3009 (2/2)
V.C.O IC3003, Q3002
BUFFER IC3105 (1/2)
L.P.F FL3102
RV3102 PB LEVEL ADJ
SWITCHED CAPACITOR FILTER IC3102
DE-EMPHASIS IC2104 (1/2)
BIAS
PWM
IC2102 (1/3)
PWM/BIAS
PWM
BIAS
IC2102 (3/3)
PANEL
SW2 (PWM/BIAS)
PB MUTE IC5, D4, D5, Q2101, 2102, 2103
TACH MUTE
A1 DROP OUT MUTE
HEAD TOUCH
PB MUTE IC5, D4, D5, Q2104, 2105, 2106
TACH MUTE
A2 DROP MUTE
OUT
HEAD TOUCH
ARPCT*
ARPCT*
TACH EDZE*


FS 48K*
A1, A2 INPUT
FS48K*
L.P.F FL1102
APERTURE COMPENSATOR IC1105 (2/2)
PRE-EMPHASIS IC1106 (1/2)
LIMITER IC1106 (2/2)
L.P.F FL1101
APERTURE COMPENSATOR IC1101 (2/2)
L.P.F FL1202
APERTURE COMPENSATOR IC1205 (2/2)
PRE-EMPHASIS IC1206 (1/2)
LIMITER IC1206 (2/2)
L.P.F FL1201
APERTURE COMPENSATOR IC1201 (2/2)
PULSE WIDTH MODULATION CIRCUIT
RAMP GAIN SELECTOR IC1401 (3/3) IC1402 (2/2)
RAMP GENERATOR ICA12, B12, 1403 1402 (1/2), Q1402
BUFFER Q1401
RV1402 MODULATION RATIO ADJ
RV1401 MODULATION DUTY ADJ
COMPARATOR IC1302
COMPARATOR IC1303
LINE DRIVER IC1301 (3/4)
LINE DRIVER IC1301 (2/4)
A REC 1 (+)
A REC 1 (-)
A REC 2 (+)
A REC 2 (-)
PWM ENA
A1 PB DELAY
A1 PB NO DELAY
A1 PB NO DELAY
IC1001 (1/3)
DELAY
EXPANDER IC1002 (2/2) IC1004 (2/2)
PWM
BIAS
IC1005 (1/3)
PWM/BIAS
A1 REPRO
A1 INPUT
IC1005 (2/3)
A1 IN/REPRO
IC1005 (3/3)
A2 PB DELAY
A2 PB NO DELAY
IC1001 (3/3)
EXPANDER IC1002 (1/2) IC1004 (1/2)
IC1006 (1/3)
A2 REPRO
A2 INPUT
IC1006 (2/3)
A2 IN/REPRO
IC1006 (3/3)
LINE OUT AMP IC1009
RV1001 OUTPUT LEVEL ADJ
A1 OUT (+)
A1 OUT (-)
BUFFER IC2301 (2/2)
VR 1 IN
RG-VR 1
METER AMP IC2301 (1/2)
RV2301 A1 METER LEVEL ADJ
MT 1 OUT
LINE OUT AMP IC1010
RV1002 OUTPUT LEVEL ADJ
A2 OUT (+)
A2 OUT (-)
VR-75 BOARD
BUFFER IC2302 (2/2)
VR 2 IN
RG-VR 2
METER AMP IC2302 (1/2)
RV2302 A2 METER LEVEL ADJ
MT 2 OUT
VR 1 OUT
HEAD PHONE AMP IC2201 (1/2)
HA 1 OUT
RG-HA 1
VR 2 OUT
HEAD PHONE AMP IC2201 (2/2)
HA 2 OUT
RG-HA 2
JK-23 BOARD
EAD
JCH
EAD
JCH
LED DRIVER IC101, 102
A1 RDY*
A1 REC*
A2 RDY*
A2 REC*
CONTROL CIRCUIT
SHIFT REGISTER /LATCH ICB13, B14, C14
ARPCT*
PB EQUALIZER CONTROL CIRCUIT
ROM (SPEED DETECTOR) ICB2
DATA LATCH ICA1, A2
ADRESS COUNTER ICA4, B4, B5
ADRESS LATCH ICC3, C4
TACH EDZE DETECTOR ICA3, A5, B3
A1 RDY*
A1 REC*
A2 RDY*
A2 REC*
A1 RDY*
A1 REC*
A2 RDY*
A2 REC*

ARP-2 (JC-23, VR-75) BOARD BLOCK DIAGRAM

PCM-3348

CK-31 BOARD

[Outline]

The CK-31 board generates the master clock according to the selected sampling frequency and the sync signal for synchronizing the operations of each block and supplies them to each board. The CK-31 board also generates signals to be fed out from this unit.
The sampling frequency can be selected from 3 values; 48.0, 44.1 and 44.056 kHz. For each value, the vari- pitch within ±12.5% is possible.
The clock and the sync signal can be synchronized with an external sync signal as necessary. For the external sync signal, either a video signal or a word can be selected.
With the video signal, synchronization is possible at ±50 ppm. With the word, synchronization is possible at ±50 ppm in NARROW mode or between 38.5 and 54.0 kHz in WIDE mode.

[Block description]

The CK-31 board consists of the following blocks:

1. Video signal I/F
2. Video PLL
3. Word PLL
4. Vari Pitch PLL
5. Clock and sync generation
6. A/D and D/A timing signal generation
7. TEST signal generation
8. CPU I/F

1. Video I/F
Signals applied to the video input pass through the input buffer amplifier. After waveform rectification, the signals become pulse waveforms of 0 – 5 V. These signals are input to the video sync separator and the frequency dividing circuit. The video sync separator consisting of ICJ5, J8 and J9 automatically distinguishes NTSC signals and PAL signals, generating pulses which are synchronized with the corresponding frame signal.
The frequency dividing circuits include a 1/2 – 1/7 dividing circuit consisting of ICJ6 and K5 and a 1/8 – 1/999 dividing circuit consisting of ICK6. Either of these circuits can be selected with the through (1/1) output and Jumper JR1 on the board. The video sync separator output and the frequency divider output are selected with the NORM switch on the board panel and are supplied to the video PLL circuit.

2. Video PLL
The video PLL circuit uses a stable phase camparator of the sample/hold type to correspond to the low reference frequency.
The ICH8 output (sampling pulse) performs sampling and holding of the output of the RAMP waves generator circuit consisting of Q011, Q012, ICG7 and ICF5.
This output is added to the free run oscillating frequency adjustment output, providing an oscillating frequency control voltage. The oscillating circuit is composed of VCX0. The oscillating frequency is 100 times Fs. The oscillation output enters a counter composed of ICE9, F9 and F10 and provides 30 kHz with frequency dividing.
This output becomes the reset signal of the RAMP wave generating circuit.
The VCX0 oscillation output is divided by the 1/100 frequency dividing circuit of ICE10, providing the reference word clock for video synchronization. The lock condition of the video PLL is detected by a circuit consisting of ICH8, H9 and K5 and is sent to the CPU I/F.

3. Word PLL
The word PLL generates 384 Fs to be the reference in Internal mode and controls external synchronization in Narrow External mode. The crystal oscillation module CX01 output of 23.04 MHz is divided into 1/1000 or 1/1001 bands, providing an internal reference signal. External sync signals are selected by ICJ10 and J4, providing the EXT word reference signal. ICC6 selects either Internal or External mode, providing the word PLL reference signal.
The phase comparator output of ICB6 passes through an L.P.F. of ICA5, providing the oscillating frequency control signal to be added to the control voltage terminal of the VCX0 module. The oscillating frequency of the VCX0 module is 384 Fs and the lock range is ±50 ppm. In Internal mode, the 384 Fs signal selected by Fs is divided into 1/735 or 1/800 bands and is input to the phase comparator.
The word PLL output is divided into 1/1000 bands, providing the Vari Pitch PLL reference signal. The lock condition of the Word PLL is monitored by the Word PLL unlock detection circuit and is sent to the CPU I/F.

4. Vari-Pitch PLL
The Vari-Pitch PLL controls the Vari-Pitch in Internal mode and controls the external synchronization in Wide External mode. For vari-pitch, a signal obtained by dividing 384 Fs output of the word PLL into 1/1000 bands is used as the reference signal.
By changing the dividing ratio of the variable frequency divider of ICB11, B12, B13 and B14, variation by 0.1% up to -12.5% is possible. In the Wide mode, an external sync input is used as the reference signal. The VCO oscillating frequency of the Vari-Pitch PLL is 768 Fs, which is divided into 1/2 bands for output.

5. Clock, Sync generation
This block generates the master (192 Fs), word and sector clocks and the word, block and sector sync signals. The word PLL or Vari Pitch PLL output of 384 Fs is first divided into 1/2 bands, providing 192 Fs. Using this 192 Fs as the master, the word clock and the word sync signal are generated at IC14, H15 and J15.
Then the block sync signal is generated at ICJ14, J13, K12 and K14, and the sector clock and the sector sync signal are generated at ICK12 and K15. These signals are once latched by the clock of 192 Fs at ICL15 and then latched by the 384 Fs clock at ICL13 and L14 to match the phase. Then the signals are output through the output driver.
Phase matching with the external sector sync input is also performed.
In the circuit consisting of ICH13, J12, K11 and K13, 256 Fs is generated

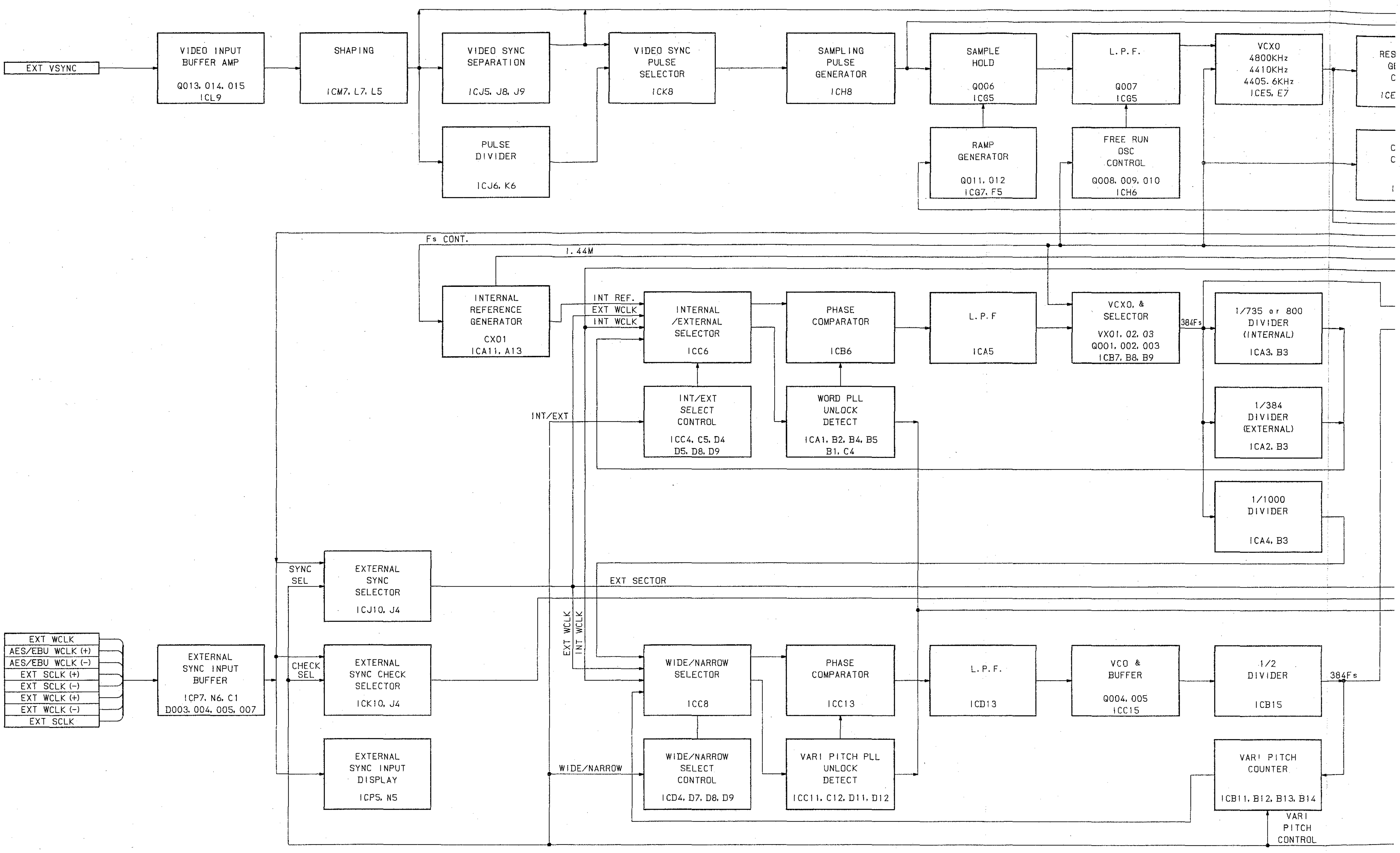
6. A/D, D/A timing signal generation
The BOARD ID and channel ID signals are generated at ICN10, N11, N12, P10, Q10 and K1 and supplied to the A/D and D/A boards.

7. TEST signal generation
Test signals required for REC current adjustment and HEAD interval adjustment are generated and supplied to the REC-5 board. At ICG18, G15 and H14, short-cycle test signals of 1.5T +1.5T, 4.5T+4.5T, 1.5T+4.5T and 4.5T+1.5T are generated. At ICF13, F14 and F15, long-cycle test signals of 28 blocks and 61 blocks are generated. These test signals are selected with the Bit Switch SW011. When either bit of SW011 is set to ON, the TEST LED lights. Since normal recording cannot be performed in this condition, all the bits must be set to OFF when the adjustments are completed.

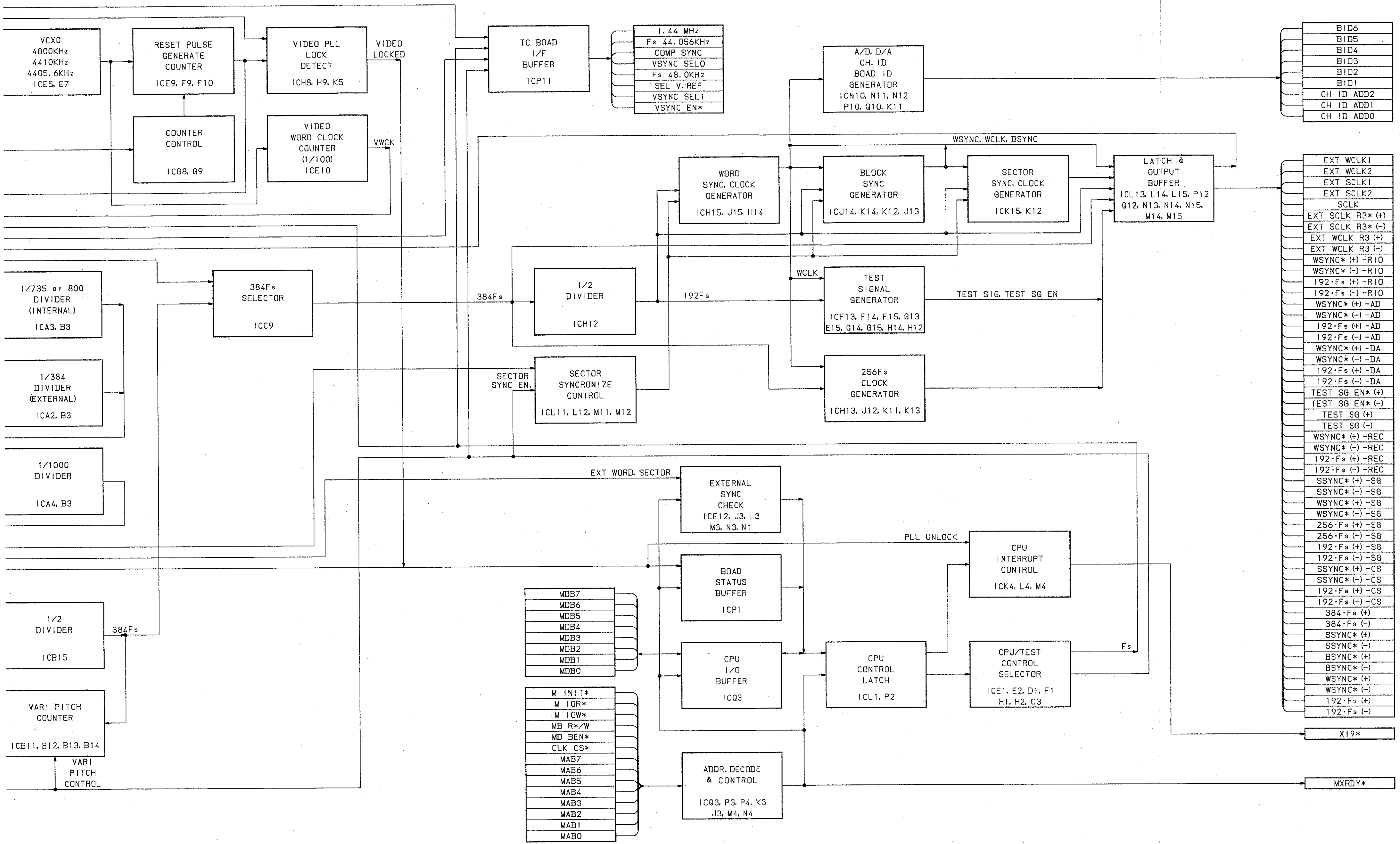
8. CPU I/F
The CK-31 board is normally under the control of CPU on the MC-33 board and the settings and conditions of the CK-31 board are monitored by the CPU. To permit some independent adjustments and checks on the CK-31 board, bit switches are provided, enabling partial controls. ICL1 is the port for various controls including Fs and Vari-Pitch data controls, etc. ICK4, L4 and M4 interrupt the CPU when a PLL is unlocked. This control is performed at ICP2.
In the external sync check block (ICE12, J3, L3, M3, N3 and N1), the cycle of the external sync signal is checked and the input signal condition is monitored. ICP1 is the buffer to monitor the switch setting and PLL lock conditions. ICK3 is the address decoder which controls the access of the CPU to each block.

(CARD RACK)
BLOCK DIAGRAM CK-31

(CARD RACK)
CK-31 BLOCK DIAGRAM



EXT VSYNC
VIDEO INPUT BUFFER AMP Q013, 014, 015 ICL9
SHAPING ICM7, L7, L5
VIDEO SYNC SEPARATION ICJ5, J8, J9
PULSE DIVIDER ICJ6, K6
VIDEO SYNC PULSE SELECTOR ICK8
SAMPLING PULSE GENERATOR ICH8
SAMPLE HOLD Q006 ICG5
RAMP GENERATOR Q011, 012 ICG7, F5
L.P.F. Q007 ICG5
FREE RUN OSC CONTROL Q008, 009, 010 ICH6
VCXO 4800KHz 4410KHz 4405.6KHz ICE5, E7
RES GE C ICE
C C
Fs CONT.
1.44M
INTERNAL REFERENCE GENERATOR CX01 ICA11, A13
INT REF.
EXT WCLK
INT WCLK
INTERNAL /EXTERNAL SELECTOR ICC6
PHASE COMPARATOR ICB6
L.P.F ICA5
VCXO, & SELECTOR VX01, 02, 03 Q001, 002, 003 ICB7, B8, B9
384Fs
1/735 or 800 DIVIDER (INTERNAL) ICA3, B3
1/384 DIVIDER (EXTERNAL) ICA2, B3
1/1000 DIVIDER ICA4, B3
INT/EXT
INT/EXT SELECT CONTROL ICC4, C5, D4 D5, D8, D9
WORD PLL UNLOCK DETECT ICA1, B2, B4, B5 B1, C4
SYNC SEL
EXTERNAL SYNC SELECTOR ICJ10, J4
EXT SECTOR
EXT WCLK
INT WCLK
EXT WCLK
AES/EBU WCLK (+)
AES/EBU WCLK (-)
EXT SCLK (+)
EXT SCLK (-)
EXT WCLK (+)
EXT WCLK (-)
EXT SCLK
EXTERNAL SYNC INPUT BUFFER ICP7, N6, C1 D003, 004, 005, 007
CHECK SEL
EXTERNAL SYNC CHECK SELECTOR ICK10, J4
EXTERNAL SYNC INPUT DISPLAY ICP5, N5
WIDE/NARROW
WIDE/NARROW SELECTOR ICC8
WIDE/NARROW SELECT CONTROL ICD4, D7, D8, D9
PHASE COMPARATOR ICC13
VARI PITCH PLL UNLOCK DETECT ICC11, C12, D11, D12
L.P.F. ICD13
VCO & BUFFER Q004, 005 ICC15
1/2 DIVIDER ICB15
384Fs
VARI PITCH COUNTER ICB11, B12, B13, B14
VARI PITCH CONTROL


VCXO
4800KHz
4410KHz
4405.6KHz
ICE5, E7
RESET PULSE
GENERATE
COUNTER
ICE9, F9, F10
COUNTER
CONTROL
ICG8, G9
VIDEO PLL
LOCK
DETECT
ICH8, H9, K5
VIDEO
LOCKED
VIDEO
WORD CLOCK
COUNTER
(1/100)
ICE10
VWCK
TC BOAD
I/F
BUFFER
ICP11
1.44 MHz
Fs 44.056KHz
COMP SYNC
VSYNC SEL0
Fs 48.0KHz
SEL V.REF
VSYNC SEL1
VSYNC EN*
A/D, D/A
CH. ID
BOAD ID
GENERATOR
ICN10, N11, N12
P10, Q10, K11
BID6
BID5
BID4
BID3
BID2
BID1
CH ID ADD2
CH ID ADD1
CH ID ADD0
WSYNC, WCLK, BSYNC
WORD
SYNC, CLOCK
GENERATOR
ICH15, J15, H14
BLOCK
SYNC
GENERATOR
ICJ14, K14, K12, J13
SECTOR
SYNC, CLOCK
GENERATOR
ICK15, K12
LATCH &
OUTPUT
BUFFER
ICL13, L14, L15, P12
Q12, N13, N14, N15,
M14, M15
EXT WCLK1
EXT WCLK2
EXT SCLK1
EXT SCLK2
SCLK
EXT SCLK R3* (+)
EXT SCLK R3* (-)
EXT WCLK R3 (+)
EXT WCLK R3 (-)
WSYNC* (+) -RIO
WSYNC* (-) -RIO
192·Fs (+) -RIO
192·Fs (-) -RIO
WSYNC* (+) -AD
WSYNC* (-) -AD
192·Fs (+) -AD
192·Fs (-) -AD
WSYNC* (+) -DA
WSYNC* (-) -DA
192·Fs (+) -DA
192·Fs (-) -DA
TEST SG EN* (+)
TEST SG EN* (-)
TEST SG (+)
TEST SG (-)
WSYNC* (+) -REC
WSYNC* (-) -REC
192·Fs (+) -REC
192·Fs (-) -REC
SSYNC* (+) -SG
SSYNC* (-) -SG
WSYNC* (+) -SG
WSYNC* (-) -SG
256·Fs (+) -SG
256·Fs (-) -SG
192·Fs (+) -SG
192·Fs (-) -SG
SSYNC* (+) -CS
SSYNC* (-) -CS
192·Fs (+) -CS
192·Fs (-) -CS
384·Fs (+)
384·Fs (-)
SSYNC* (+)
SSYNC* (-)
BSYNC* (+)
BSYNC* (-)
WSYNC* (+)
WSYNC* (-)
192·Fs (+)
192·Fs (-)
1/735 or 800
DIVIDER
(INTERNAL)
ICA3, B3
384Fs
SELECTOR
ICC9
384Fs
1/2
DIVIDER
ICH12
192Fs
WCLK
TEST
SIGNAL
GENERATOR
ICF13, F14, F15, G13
E15, G14, G15, H14, H12
TEST SIG, TEST SG EN
1/384
DIVIDER
(EXTERNAL)
ICA2, B3
SECTOR
SYNC EN.
SECTOR
SYNCRONIZE
CONTROL
ICL11, L12, M11, M12
256Fs
CLOCK
GENERATOR
ICH13, J12, K11, K13
1/1000
DIVIDER
ICA4, B3
EXT WORD, SECTOR
EXTERNAL
SYNC
CHECK
ICE12, J3, L3
M3, N3, N1
PLL UNLOCK
CPU
INTERRUPT
CONTROL
ICK4, L4, M4
BOAD
STATUS
BUFFER
ICP1
MDB7
MDB6
MDB5
MDB4
MDB3
MDB2
MDB1
MDB0
1/2
DIVIDER
ICB15
384Fs
CPU
I/O
BUFFER
ICQ3
CPU
CONTROL
LATCH
ICL1, P2
CPU/TEST
CONTROL
SELECTOR
ICE1, E2, D1, F1
H1, H2, C3
Fs
VARI PITCH
COUNTER
ICB11, B12, B13, B14
VARI
PITCH
CONTROL
M INIT*
M IOR*
M IOW*
MB R*/W
MD BEN*
CLK CS*
MAB7
MAB6
MAB5
MAB4
MAB3
MAB2
MAB1
MAB0
ADDR. DECODE
& CONTROL
ICQ3, P3, P4, K3
J3, M4, N4
X19*
MXRDY*

CK-31 BOARD BLOCK DIAGRAM

PCM-3348

CS-24 BOARD

[Outline]

The CS-24 (CAPSTAN SERVO) board is functionally divided into the following five blocks:

1. High-speed servo block
2. Phase servo block
3. CS-24 board - TRC board interface block
4. Motor driver block
5. Sector slip block

[Block description]

1. High-speed servo block
The high-speed servo block is provided to ensure the rotational speed of the capstan motors. It basically controls the motors so that FG of the motors (1 kHz in playback when Fs = 48 kHz - All the values to be referred to in the following text are those when Fs = 48 kHz) agrees with 1 kHz signal obtained by dividing the reference clock of 9.216 kHz supplied from the CK-31 board.
With a clock input of 9.216 MHz, a 14-bit counter is loaded and activated by the EDGE signal of CFG (FG of the capstan motors), counting pulses of 9.216 MHz between CFG 1 pulses. This count data is input to the D/A converter and output as the high-speed servo error signal.
The D/A converter is adjusted so that the output becomes 0 V when the count data at the CFG cycle of 1 msec is applied. When the motor is accelerated, the count data decreases and the D/A converter output increases, rotating the motors faster.

2. Phase servo block
There are two types of phase servo; FG servo and CTL servo. FG servo controls the capstan motors so that the FG phase of the motors agrees with the phase of the reference clock (SERVO SYNC signal; S.SYNC for short) sent from the CK-31 board. A certain phase OFFSET is provided when the servo is locked.
The CTL servo controls the capstan motors so that the phase of the signal obtained by extracting the SYNC signal from the CTL signal recorded on a tape (PB SECTOR SYNC; PB SYNC for short) agrees with the phase of the reference clock (S.SYNC signal). Similarly to the FG servo, a certain phase OFFSET is provided when the servo is locked.
In FG servo, with the clock input of 1.024 MHz, a 10-bit counter is loaded and activated by the S.SYNC signal, latching the data by the edge signal of CFG and inputting it to the D/A converter. The D/A converter is adjusted so that the output becomes 0 V when the phase difference between S.SYNC and CFG is approximately 70 usec.
In CTL servo, with the clock input of 1.024 MHz, a 10-bit counter is loaded by the CFG EDGE signal. The output of this counter is latched by the PB SYNC signal. This latch data is added to the latch data of the above 10-bit counter in FG servo and input to the D/A converter.
The D/A converter output is used as the phase error signal for servo lock.
The CPU selects FG servo only for recording in ADVANCE REC mode. In other modes, CTL servo is selected. When no PB SYNC signal is applied, the same procedures as those in FG servo are performed even if the CPU has set CTL servo.

3. CS-24 board - TRC board interface block
The CS-24 board is equipped with I/O ports for the CPU on the TRC-1 board. The following servo operations are controlled from the TRC-board via these I/O ports; capstan servo motor ON/OFF, phase servo motor ON/OFF, CLUTCH ON/OFF, motor drive ON/OFF, sector slip and its direction controls, FG servo/CTL servo switching and 4-phase/1-phase servo switching, etc.

4. Motor driver block
For the capstan motors in the PCM-3348, 3-phase brushless switching motors are used. These motors are composed of a capstan motor drive timing controller and a driver section. The controller selects phases to feed a current, and the driver section converts the capstan motor drive voltage into a current to be fed to each phase. The driver voltage includes an offset voltage to compensate speed servo error, phase servo error and motor loss.
The coils of the motor phases are as shown in Fig.1. The phase to which a current to be fed is changed in the sequence of ① a to b, ② c to b, ③ c to a, ④ b to a, ⑤ b to c, ⑥ a to c.

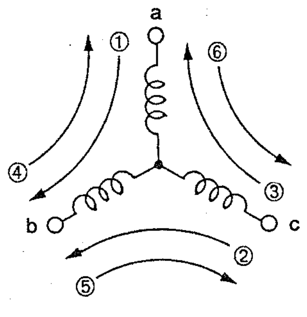
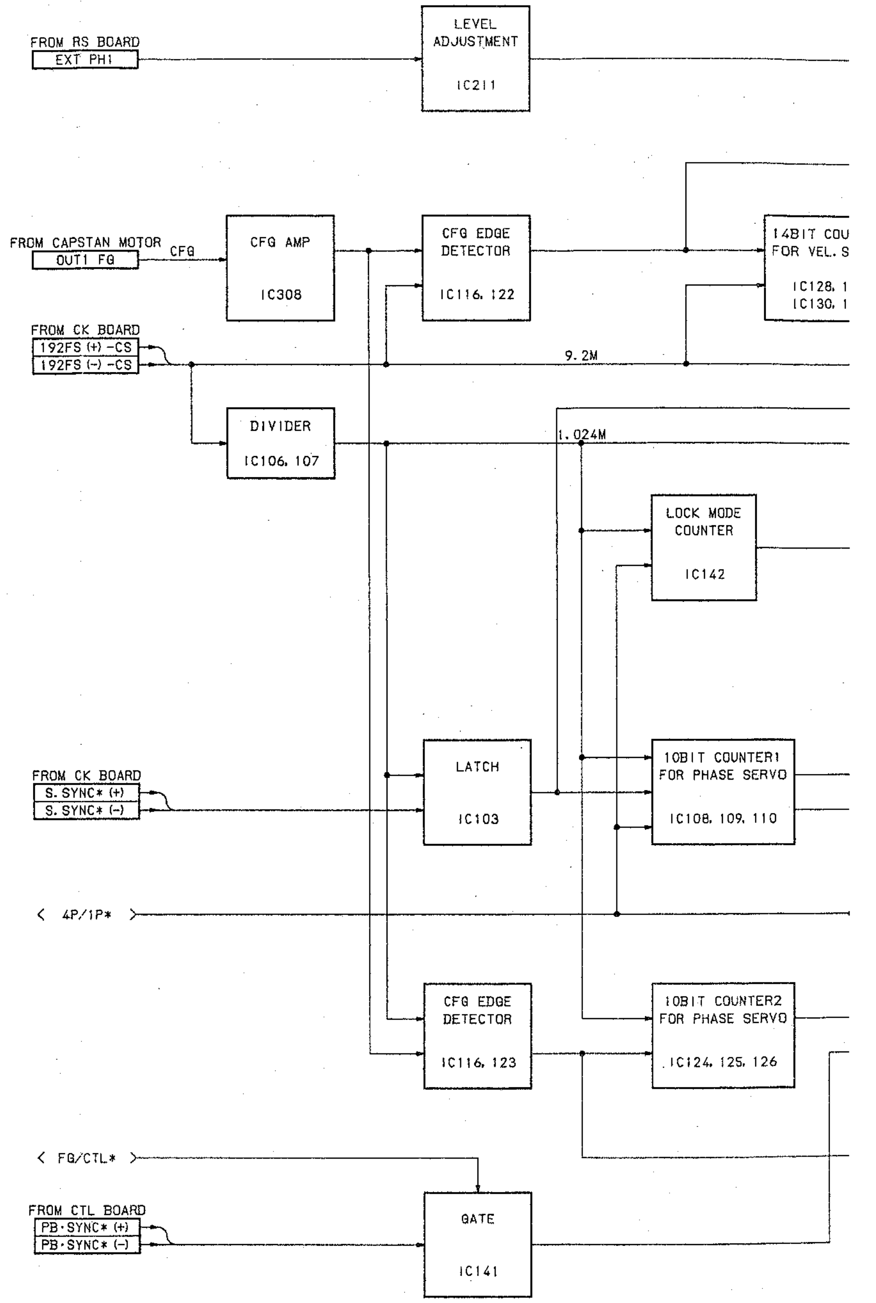
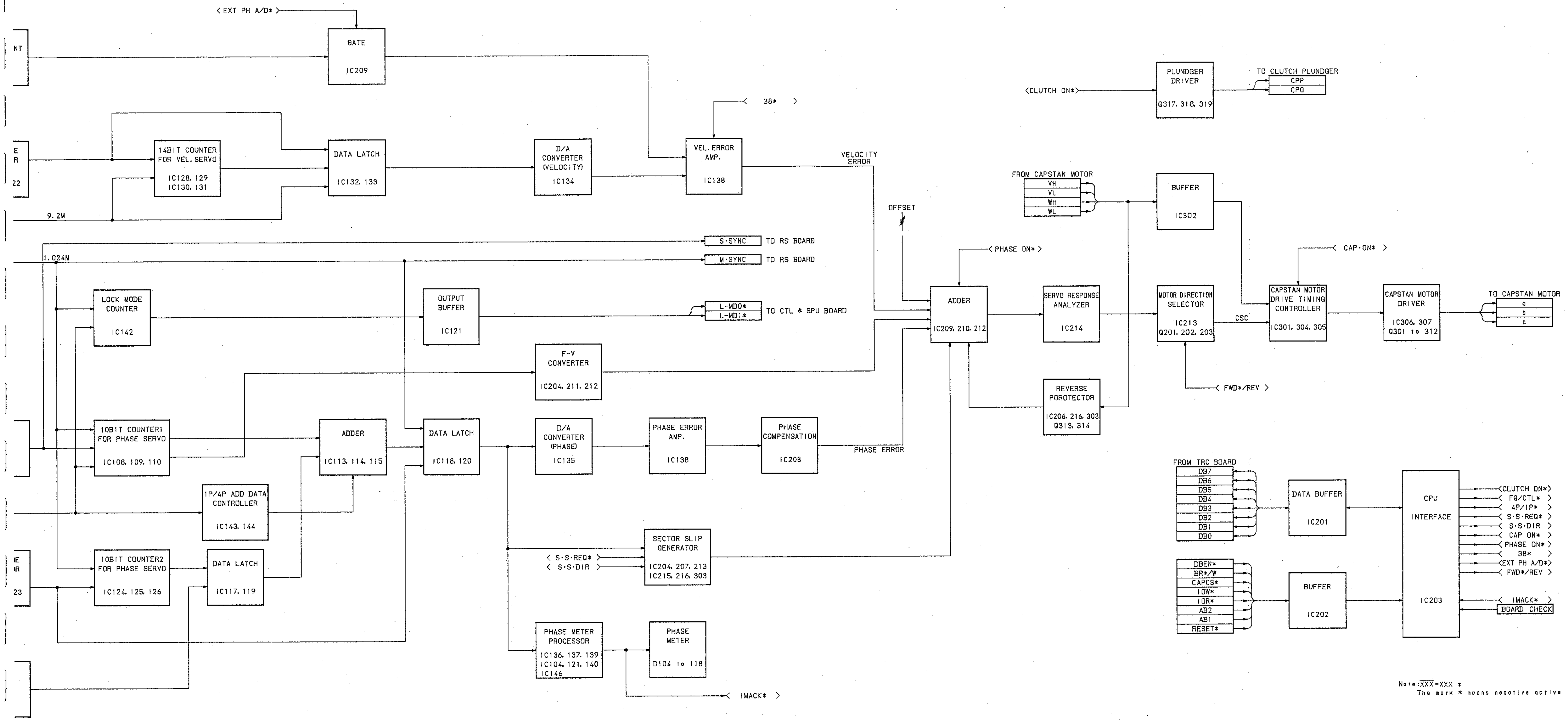


Fig.1

5. Sector slip block
This block changes the S.SYNC signal to be locked to the preceding or succeeding signal of the currently locked one. This function is effective on the slave machine when synchronizing two or more DASH


FROM RS BOARD
EXT PH1
LEVEL ADJUSTMENT
IC211
FROM CAPSTAN MOTOR
OUT1 FG
CFG
CFG AMP
IC308
CFG EDGE DETECTOR
IC116, 122
14BIT COU
FOR VEL. S
IC128, 1
IC130, 1
FROM CK BOARD
192FS (+) -CS
192FS (-) -CS
9.2M
DIVIDER
IC106, 107
1.024M
LOCK MODE COUNTER
IC142
FROM CK BOARD
S. SYNC* (+)
S. SYNC* (-)
LATCH
IC103
10BIT COUNTER1 FOR PHASE SERVO
IC108, 109, 110
< 4P/1P* >
CFG EDGE DETECTOR
IC116, 123
10BIT COUNTER2 FOR PHASE SERVO
IC124, 125, 126
< FG/CTL* >
FROM CTL BOARD
PB·SYNC* (+)
PB·SYNC* (-)
GATE
IC141


< EXT PH A/D* >
GATE
IC209
NT
E
R
22
9.2M
14BIT COUNTER FOR VEL. SERVO
IC128, 129
IC130, 131
DATA LATCH
IC132, 133
D/A CONVERTER (VELOCITY)
IC134
VEL. ERROR AMP.
IC138
< 38* >
VELOCITY ERROR
1.024M
S·SYNC
TO RS BOARD
M·SYNC
TO RS BOARD
LOCK MODE COUNTER
IC142
OUTPUT BUFFER
IC121
L-MDO*
L-MD1*
TO CTL & SPU BOARD
F-V CONVERTER
IC204, 211, 212
10BIT COUNTER1 FOR PHASE SERVO
IC108, 109, 110
ADDER
IC113, 114, 115
DATA LATCH
IC118, 120
D/A CONVERTER (PHASE)
IC135
PHASE ERROR AMP.
IC138
PHASE COMPENSATION
IC208
PHASE ERROR
1P/4P ADD DATA CONTROLLER
IC143, 144
IE
IR
23
10BIT COUNTER2 FOR PHASE SERVO
IC124, 125, 126
DATA LATCH
IC117, 119
< S·S·REQ* >
< S·S·DIR >
SECTOR SLIP GENERATOR
IC204, 207, 213
IC215, 216, 303
PHASE METER PROCESSOR
IC136, 137, 139
IC104, 121, 140
IC146
PHASE METER
D104 to 118
< IMACK* >
OFFSET
< PHASE ON* >
ADDER
IC209, 210, 212
<CLUTCH ON*>
PLUNDGER DRIVER
Q317, 318, 319
TO CLUTCH PLUNDGER
CPP
CPG
FROM CAPSTAN MOTOR
VH
VL
WH
WL
BUFFER
IC302
SERVO RESPONSE ANALYZER
IC214
MOTOR DIRECTION SELECTOR
IC213
Q201, 202, 203
CSC
< FWD*/REV >
< CAP·ON* >
CAPSTAN MOTOR DRIVE TIMING CONTROLLER
IC301, 304, 305
CAPSTAN MOTOR DRIVER
IC306, 307
Q301 to 312
TO CAPSTAN MOTOR
a
b
c
REVERSE POROTECTOR
IC206, 216, 303
Q313, 314
FROM TRC BOARD
DB7
DB6
DB5
DB4
DB3
DB2
DB1
DB0
DATA BUFFER
IC201
DBEN*
BR*/W
CAPCS*
IOW*
IOR*
AB2
AB1
RESET*
BUFFER
IC202
CPU
INTERFACE
IC203
<CLUTCH ON*>
< FG/CTL* >
< 4P/1P* >
< S·S·REQ* >
< S·S·DIR >
< CAP ON* >
< PHASE ON* >
< 38* >
<EXT PH A/D*>
< FWD*/REV >
< IMACK* >
BOARD CHECK

Note: $\overline{XXX}$ = XXX *
The mark * means negative active

CS-24 BOARD BLOCK DIAGRAM
PCM-3348

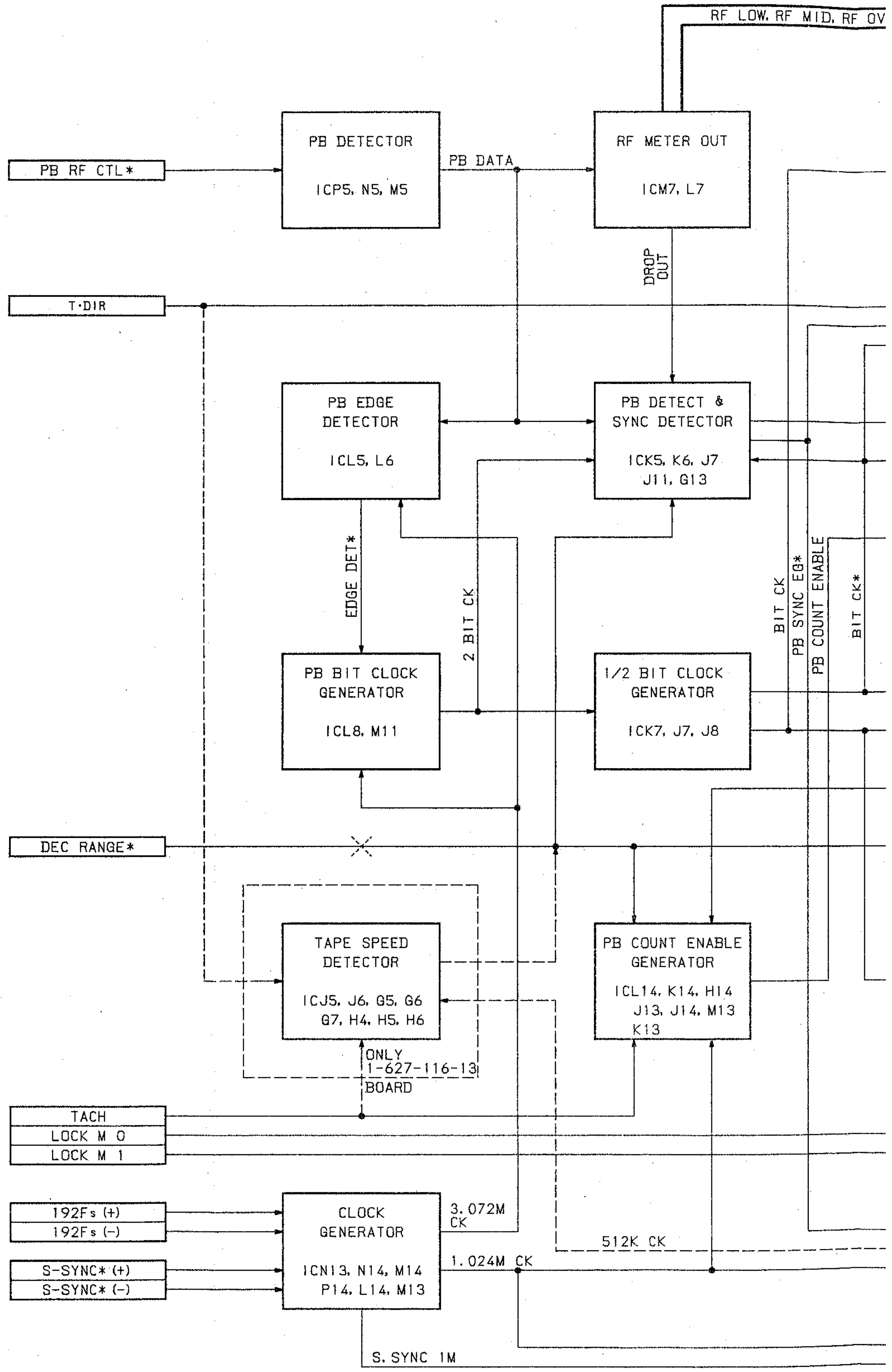
CTL-2 BOARD

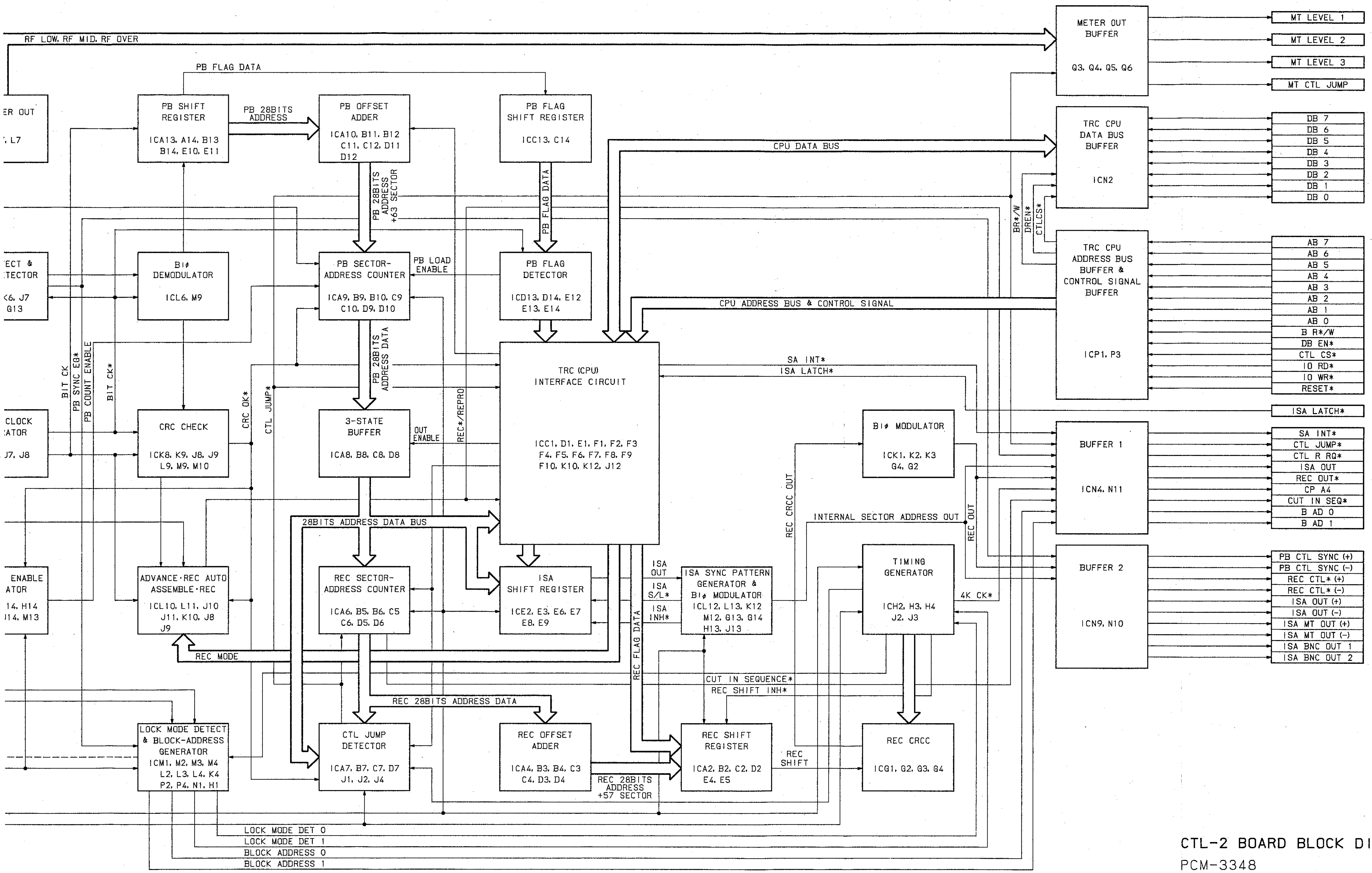
[Outline]

The CTL board handles data written on the CTL track of a tape. It detects and Bi-Phi-demodulates the tape data sent via the PRE-1 board. Cyclic Redundancy Check (CRC) is then performed and the data is sent to the TRC-1 board through the CPU INTERFACE circuit.
The CTL-2 board also monitors the continuity of the SECTOR address. When detecting any discontinuity, it sends a CTL JUMP signal to the SPU-1 board. And, detecting the Format sync pattern from the data, the CTL-2 board sends it as a PB CTL SYNC signal to the CS-24 board, which locks the CTL servo according to the signal. In addition, the CTL-2 generates recording data (normally by loading PB data to the recording side), adds LAG data applied from the CPU to it, and sends it to the REC-5 board after CRC and Bi-Phi-modulation.

[Block description]

Data sent from the PRE-1 board in differential waves is integrated and converted into digital data by a comparator. Then the data is divided into three levels of LOW, MID and OVER, and is sent to the meter as level 1, 2 and 3. The PB data converted into digital data is detected by a 2-bit clock (synchronized with the data) generated by dividing the 3.072 MHz master clock into 1/24 bands. The format sync pattern is also detected from the data. The result of the sync pattern detections is sent to the CS-24 board as a PB CTL SYNC in a sync width of 1.024 M. This PB CTL SYNC detection is enabled by DEC RANGE or DROP OUT.
The DEC RANGE is information on tape speed and is active only in a speed area in which CTL data detection is possible. At a drop out or in a speed area in which CTL data detection is impossible, the PB CTL SYNC detection is disabled to prevent incorrect PB CTL SYNC from being generated.
The detected data is Bi-Phi-demodulated and sent to the shift register (S/P conversion). CRC is then also performed.
The data converted into parallel data by the bit clock generated by dividing the 2-bit clock in two by the PB CTL SYNC, is loaded into the PB SECTOR COUNTER according to the CRC result after addition by -63 sectors in the PB OFFSET adder. When no error is found in CRC, new data is loaded. When any error is found in CRC, "1" is added to the previous value. The address data directing is enabled by connecting T.DIR to the UP/DOWN terminal of the PB SECTOR counter.
T.DIR is information on the tape direction applied from the TRC-1 board. In REW and FF modes, the edge of TACH (obtained by dividing CRFG in two) is detected at 1.024 MHz, which is used as ENABLE (TACH interpolation). In normal playback mode, a pulse of 1 kHz synchronized with CRC OK is generated and used as ENABEL. Switching it with TACH interpolation is performed by DEC RANGE (When DEC RANGE is not active, only TACH interpolation is performed.)
PB 28BITS ADDRESS DATA from the PB SECTOR counter is sent to the CPU via a 3-state buffer and then to the REC SECTOR counter, the CTL JUMP detector and the ISA SHIFT register. The CTL JUMP detector monitors the continuity of the PB data. When any discontinuity is detected, it is regarded as a cut by hand, a CTL JUMP* signal is sent to the SPU board via BUFFER 1 and the REC SECTOR counter is loaded.
PB 28BITS ADDRESS DATA sent to the ISA SHIFT register is converted into serial data and output through BUFFER 2 with the ISA format sync pattern after Bi-Phi-modulation.
REC 28BITS ADDRESS DATA from the REC SECTOR counter is added by -57 sectors by the REC OFFSET ADDER. After hiving been converted into serial data by the REC SHIFT register, the data is sent to the REC-5 board after CRC and Bi-Phi-modulation.
For recording, REC mode information is applied from the CPU. After checking the recording condition, the CTL sends a REC ON signal to the CPU. There are three modes for recording; ADVANCE REC, INSERT REC and AUTO ASSEMBLE REC.
In INSERT REC mode, CTL is not recorded.
In AUTO ASSEMBLE REC mode, the continuity of CTL signals on a tape is maintained even if CTL signals are lost before the recording ends.
When the discontinuity of CTL signals exceeds the distance between the PB head and the SYNC REC head (for 122 sectors) (or when CRC finds error in 122 continuous sectors), a REC ON signal is sent to the CPU and recording is started at the SYNC REC head.


RF LOW, RF MID, RF OV
PB RF CTL*
PB DETECTOR
ICP5, N5, M5
PB DATA
RF METER OUT
ICM7, L7
DROP OUT
T·DIR
PB EDGE DETECTOR
ICL5, L6
PB DETECT & SYNC DETECTOR
ICK5, K6, J7
J11, G13
EDGE DET*
2 BIT CK
BIT CK
PB SYNC EG*
PB COUNT ENABLE
BIT CK*
PB BIT CLOCK GENERATOR
ICL8, M11
1/2 BIT CLOCK GENERATOR
ICK7, J7, J8
DEC RANGE*
TAPE SPEED DETECTOR
ICJ5, J6, G5, G6
G7, H4, H5, H6
ONLY
1-627-116-13
BOARD
PB COUNT ENABLE GENERATOR
ICL14, K14, H14
J13, J14, M13
K13
TACH
LOCK M 0
LOCK M 1
192Fs (+)
192Fs (-)
S-SYNC* (+)
S-SYNC* (-)
CLOCK GENERATOR
ICN13, N14, M14
P14, L14, M13
3.072M CK
1.024M CK
512K CK
S. SYNC 1M


RF LOW, RF MID, RF OVER
PB FLAG DATA
ER OUT
L7
PB SHIFT REGISTER
ICA13, A14, B13 B14, E10, E11
PB 28BITS ADDRESS
PB OFFSET ADDER
ICA10, B11, B12 C11, C12, D11 D12
PB FLAG SHIFT REGISTER
ICC13, C14
PB 28BITS ADDRESS +63 SECTOR
PB FLAG DATA
CPU DATA BUS
METER OUT BUFFER
Q3, Q4, Q5, Q6
MT LEVEL 1
MT LEVEL 2
MT LEVEL 3
MT CTL JUMP
TRC CPU DATA BUS BUFFER
ICN2
DB 7
DB 6
DB 5
DB 4
DB 3
DB 2
DB 1
DB 0
BR*/W
DREN*
CTLCS*
ECT &
TECTOR
K6, J7
G13
BI∮ DEMODULATOR
ICL6, M9
PB SECTOR-ADDRESS COUNTER
ICA9, B9, B10, C9 C10, D9, D10
PB LOAD ENABLE
PB FLAG DETECTOR
ICD13, D14, E12 E13, E14
CPU ADDRESS BUS & CONTROL SIGNAL
TRC CPU ADDRESS BUS BUFFER & CONTROL SIGNAL BUFFER
ICP1, P3
AB 7
AB 6
AB 5
AB 4
AB 3
AB 2
AB 1
AB 0
B R*/W
DB EN*
CTL CS*
IO RD*
IO WR*
RESET*
BIT CK
PB SYNC EG*
PB COUNT ENABLE
BIT CK*
CRC OK*
CTL JUMP*
PB 28BITS ADDRESS DATA
REC*/REPRO
TRC (CPU) INTERFACE CIRCUIT
ICC1, D1, E1, F1, F2, F3 F4, F5, F6, F7, F8, F9 F10, K10, K12, J12
SA INT*
ISA LATCH*
ISA LATCH*
CLOCK
ATOR
J7, J8
CRC CHECK
ICK8, K9, J8, J9 L9, M9, M10
3-STATE BUFFER
ICA8, B8, C8, D8
OUT ENABLE
BI∮ MODULATOR
ICK1, K2, K3 G4, G2
BUFFER 1
ICN4, N11
SA INT*
CTL JUMP*
CTL R RQ*
ISA OUT
REC OUT*
CP A4
CUT IN SEQ*
B AD 0
B AD 1
REC CRCC OUT
INTERNAL SECTOR ADDRESS OUT
REC OUT
28BITS ADDRESS DATA BUS
ENABLE
ATOR
14, H14
14, M13
ADVANCE·REC AUTO ASSEMBLE·REC
ICL10, L11, J10 J11, K10, J8 J9
REC SECTOR-ADDRESS COUNTER
ICA6, B6, C5 C6, D5, D6
ISA SHIFT REGISTER
ICE2, E3, E6, E7 E8, E9
ISA OUT
ISA S/L*
ISA INH*
ISA SYNC PATTERN GENERATOR & BI∮ MODULATOR
ICL12, L13, K12 M12, G13, G14 H13, J13
TIMING GENERATOR
ICH2, H3, H4 J2, J3
4K CK*
BUFFER 2
ICN9, N10
PB CTL SYNC (+)
PB CTL SYNC (-)
REC CTL* (+)
REC CTL* (-)
ISA OUT (+)
ISA OUT (-)
ISA MT OUT (+)
ISA MT OUT (-)
ISA BNC OUT 1
ISA BNC OUT 2
REC MODE
REC FLAG DATA
CUT IN SEQUENCE*
REC SHIFT INH*
REC 28BITS ADDRESS DATA
LOCK MODE DETECT & BLOCK-ADDRESS GENERATOR
ICM1, M2, M3, M4 L2, L3, L4, K4 P2, P4, N1, H1
CTL JUMP DETECTOR
ICA7, B7, C7, D7 J1, J2, J4
REC OFFSET ADDER
ICA4, B3, B4, C3 C4, D3, D4
REC 28BITS ADDRESS +57 SECTOR
REC SHIFT REGISTER
ICA2, B2, C2, D2 E4, E5
REC SHIFT
REC CRCC
ICG1, G2, G3, G4
LOCK MODE DET 0
LOCK MODE DET 1
BLOCK ADDRESS 0
BLOCK ADDRESS 1

CTL-2 BOARD BLOCK DIAGRAM

PCM-3348

DA-25 BOARD

[Outline]

The DA-25 board converts 8-channel digital data into analog signals.

[Block description]

1. Digital block
Digital data is time-divided and sent through the parallel bus. On the DA-25 board, the data enters the digital filters (ICC-3, B-3, E-3 and F-3)) via the buffers (ICG-2 and H-2). The digital filter ICs read in the data according to the control signals (ICI-1, I-2. J-1 and J-2) generated from channel ID signals.

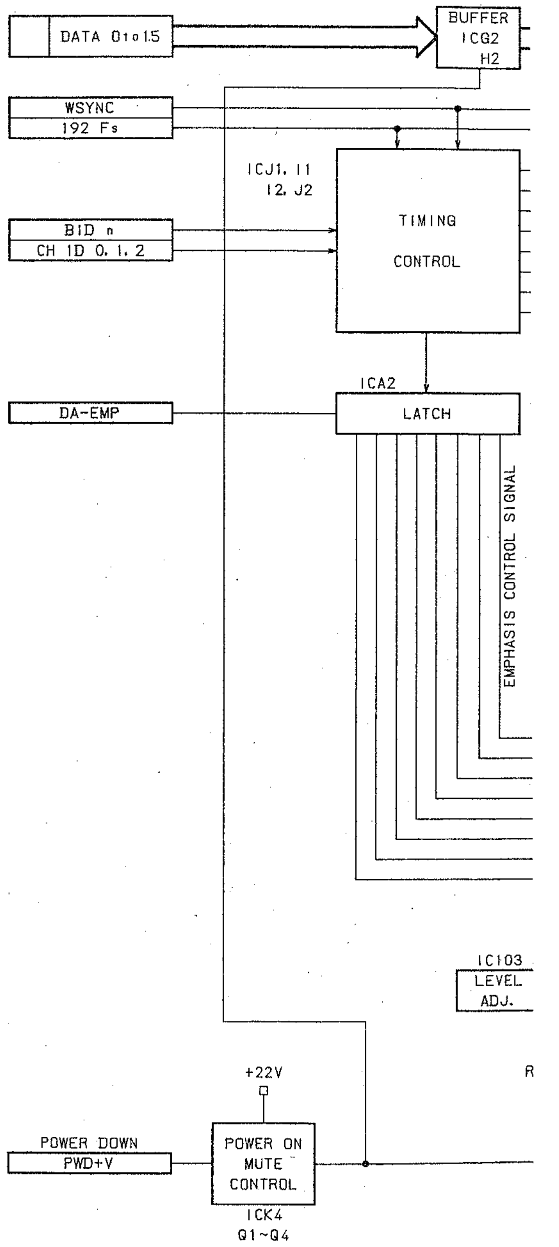
Since emphasis information is also time-divided and transmitted in the same manner as the data, the emphasis control signal is generated by using the data control signals. (ICA-2)

Data read in the digital filters is doubled by a interpolating operation and the control signals from the digital filter ICs are also output corresponding to the doubled sampling frequency.
At this point, the serial output is selected for the data format according to the D/A converter input.

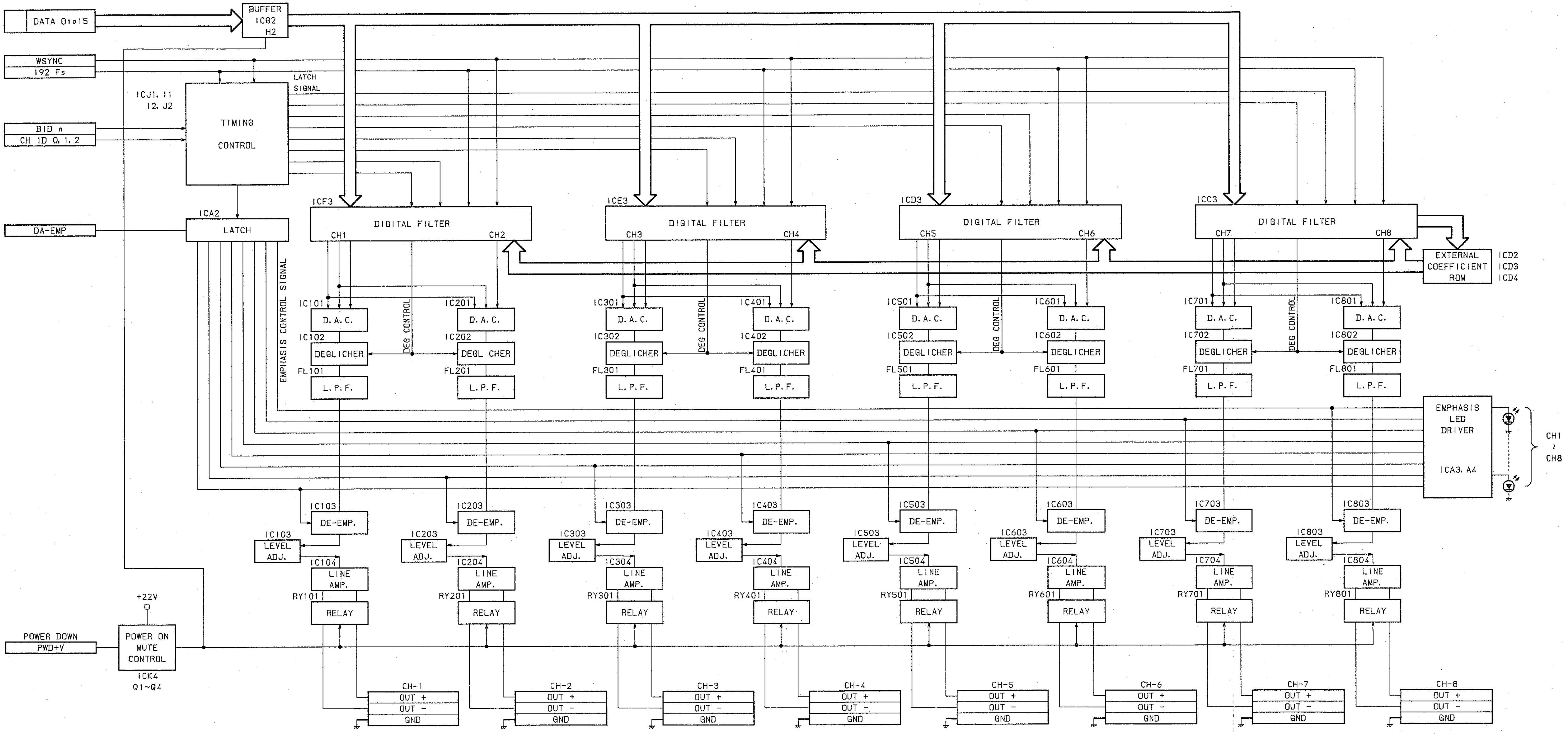
The D/A converter ICs (IC101 - 801) receive the data and control signals synchronized with the doubled sampling frequency and perform conversion. The analog volume is output as a current, and the built-in OP amplifier converts the current into a voltage. Grids generated during D/A conversion are simultaneously deleted. (IC102 - 802).

2. Analog block
Signals converted into the voltage waveforms pass through a low-pass filter for band limiting, and the conversion from digital data into analog audio signals is completed. After that, the analog audio signals are output after passing through the DE-EMPHASIS circuit, the level adjusting stage and the balanced output stage. The balanced output stage has an automatic adjustment function providing no level change while being used with an unbalanced load at single-line ground.

DA-25 BOARD (CARD RACK)



DA-25 BOARD (CARD RACK)


DATA 0 to 15
BUFFER
ICG2
H2
WSYNC
192 Fs
LATCH SIGNAL
ICJ1, 11
12, J2
TIMING
CONTROL
BID n
CH ID 0, 1, 2
DA-EMP
ICA2
LATCH
EMPHASIS CONTROL SIGNAL
ICF3
DIGITAL FILTER
CH1
CH2
ICE3
DIGITAL FILTER
CH3
CH4
ICD3
DIGITAL FILTER
CH5
CH6
ICC3
DIGITAL FILTER
CH7
CH8
EXTERNAL
COEFFICIENT
ROM
ICD2
ICD3
ICD4
DEG CONTROL
IC101
D. A. C.
IC102
DEGLICHER
FL101
L. P. F.
IC201
D. A. C.
IC202
DEGL CHER
FL201
L. P. F.
IC301
D. A. C.
IC302
DEGLICHER
FL301
L. P. F.
IC401
D. A. C.
IC402
DEGLICHER
FL401
L. P. F.
IC501
D. A. C.
IC502
DEGLICHER
FL501
L. P. F.
IC601
D. A. C.
IC602
DEGLICHER
FL601
L. P. F.
IC701
D. A. C.
IC702
DEGLICHER
FL701
L. P. F.
IC801
D. A. C.
IC802
DEGLICHER
FL801
L. P. F.
EMPHASIS
LED
DRIVER
ICA3, A4
CH1
~
CH8
IC103
DE-EMP.
IC103
LEVEL
ADJ.
IC104
LINE
AMP.
RY101
RELAY
IC203
DE-EMP.
IC203
LEVEL
ADJ.
IC204
LINE
AMP.
RY201
RELAY
IC303
DE-EMP.
IC303
LEVEL
ADJ.
IC304
LINE
AMP.
RY301
RELAY
IC403
DE-EMP.
IC403
LEVEL
ADJ.
IC404
LINE
AMP.
RY401
RELAY
IC503
DE-EMP.
IC503
LEVEL
ADJ.
IC504
LINE
AMP.
RY501
RELAY
IC603
DE-EMP.
IC603
LEVEL
ADJ.
IC604
LINE
AMP.
RY601
RELAY
IC703
DE-EMP.
IC703
LEVEL
ADJ.
IC704
LINE
AMP.
RY701
RELAY
IC803
DE-EMP.
IC803
LEVEL
ADJ.
IC804
LINE
AMP.
RY801
RELAY
+22V
POWER DOWN
PWD+V
POWER ON
MUTE
CONTROL
ICK4
Q1~Q4
CH-1
OUT +
OUT −
GND
CH-2
OUT +
OUT −
GND
CH-3
OUT +
OUT −
GND
CH-4
OUT +
OUT −
GND
CH-5
OUT +
OUT −
GND
CH-6
OUT +
OUT −
GND
CH-7
OUT +
OUT −
GND
CH-8
OUT +
OUT −
GND

DA-25 BOARD BLOCK DIAGRAM
PCM-3348

DET-6 BOARD

[Outline]

Digital track signals included in the signals supplied from the playback head and amplified on the PRE-1 boards enter the DET-6 board. The purpose of the DET circuit is to return the signal recorded on a tape to the original waveforms before recorded. That is, differential waves are obtained by writing a HDM-1 converted pulse string on a tape and reading it with a playback head, and this circuit returns these waves to the original HDM-1 pulse string.

[Board description]

The circuit is roughly divided into the following three blocks:
1. Transversal filter block
2. Integrator and DC reproduction block
3. Extraction and waveform rectification block

The DET-6 board by itself corresponds to 12 channels and the left-most digit(s) of the reference numbers show(s) the corresponding channel (CH for short in the following text) number. Thus, for example, IC101 and IC1201 are of the same IC; the former is IC1 for channel 1 and the latter is IC1 for channel 12. The following text describes the circuits for channel 1 representative of twelve channels.

1. Transversal filter block
Code interference causes an extreme peak shift in the differential waveforms sent from the preamplifier. To recover the waveforms, this peak shift must be first deleted.
One of the methods to recover is an operation called ''Pulse slimming'' which finely divides the differential waves to delete the interference. As shown in the block diagram, this block is composed of IC101, DL101, IC102 and two semi-fixed resistors. The analog switch of IC102 shown in the diagram switches the tap of the DELAY line. The DELAY time is changed according to the Vari-Speed when Fs is switched. Two bits, DL0 and DL1, are applied from the MC-33 board as the switching signal.

2. Integrator and DC reproduction block
Generally, the pulse-slimmed waveforms are integrated and extracted by a comparator to recover the original pulse string. Another method to recover is ''differential extraction'' which directly processes the differential waveforms. When compared with the former ''integral extraction'', it has both superiorities and inferiorities. In this PCM-3348, integral extraction is employed, respecting the signal-to-noise ratio, etc.
Since HDM-1 contains many DC components which may cause ''waviness'' when integrated, circuits to cancel these components are required. In other word, this ''waviness'' is a reproduction of DC components in the low band lost in band limiting. Only a waviness detecting circuit with a semi-real-time envelope detector and a circuit to add the components with reversed phase are included in the waviness cancelling circuits composed of DL102, IC104, IC105 and IC106. This block also corresponds to the Vari-Speed in the same manner as the block previously described in Paragraph 1. IC103 (1/2) is the ''integrator''.
After the above operations, ''I pattern'' is obtained from the IC106 (1/2) output. This signal is sent to the comparator on the next stage.

3. Extraction and wave rectification block
In addition to the circuit generally required for extraction of I pattern by a comparator, this block is equipped with an additional circuit. In playback, this circuit detects and compensates any shift of the proper extracting point due to minimal offset caused during recording. The circuit simply integrates the square waves with a comparatively large time constant after extracting the I pattern, and it feeds them back to the reference side of the comparator. Although HDM-1 contains DC components as mentioned in the preceding paragraph, the occurrence ratio of 0 and 1 in random patterns will be the same during a long period of time.
Thus, by integrating with a large time constant, DC offset components in recording can be detected and automatic OFFSET adjustment can be performed by changing the comparator reference using the voltage.

IC1303 shown in the block diagram is the comparator for extraction and IC1307 is the L.P.F. for integration. The diode limiter composed of D1301 and D1302 prevents malfunctions due to improper DC components in case of fixed patterns.
The signals after waveform rectification by the comparator are sent to the SPU-1 board via the MC MOS buffer IC1304.

FL-60 BOARD

The PRE-1 board is a group of amplifiers with a wide range and high gain so that a ripple filter is required for power supply. The FL-60 board is the board used for this purpose.
The power source of +15V input to this board is flattened by the filter choke and condenser, and then by the three-terminal regulator it is flattened again and the voltage is stabilized. The output is +12 V, which is supplied to the PRE-1 board as a power source.

PRE-1 BOARD

[Outline]

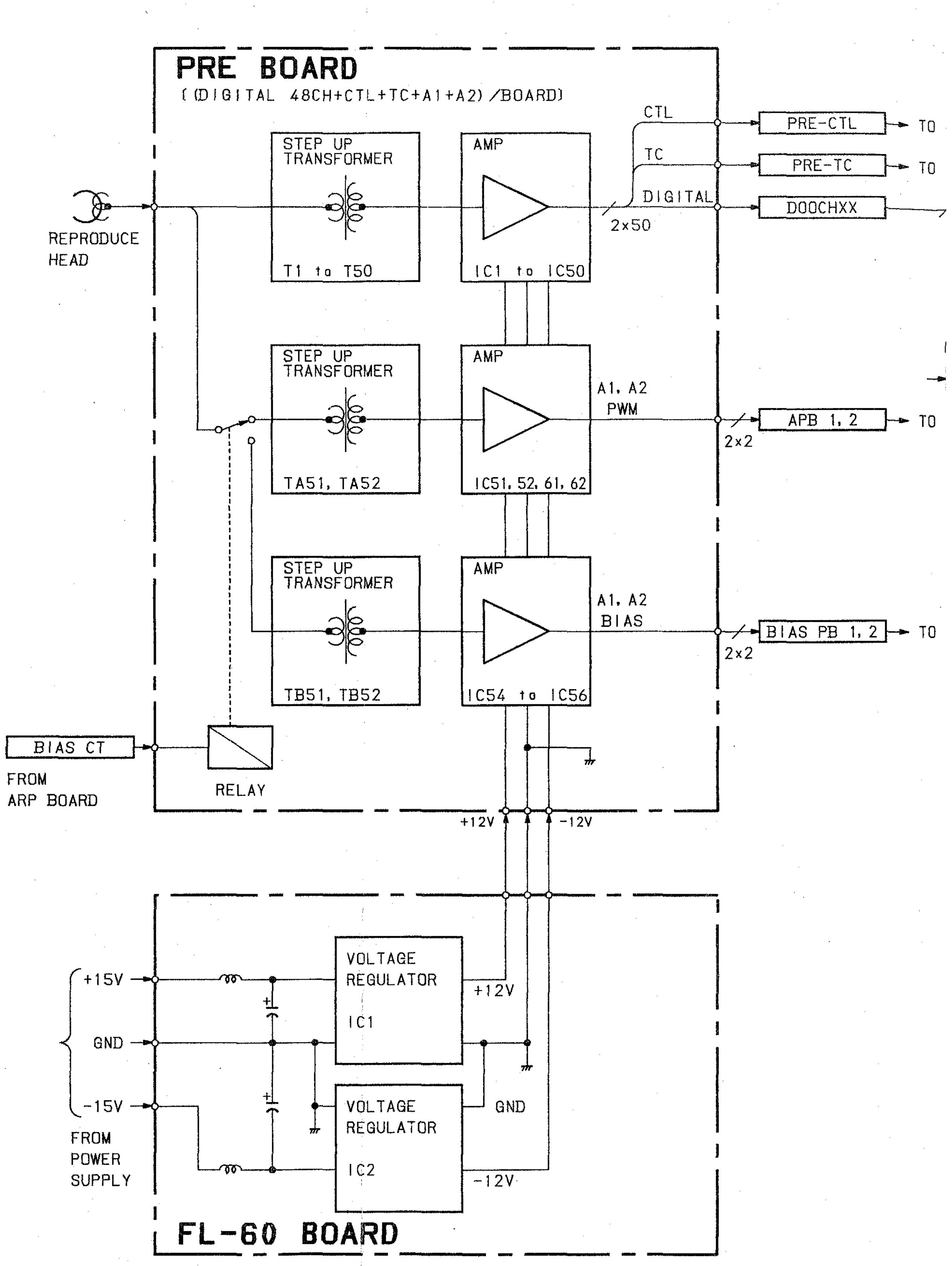
The faint signal reproduced by the PB head is amplified by the PRE-1 board. This board amplifies all signals reproduced by the PB head, i.e. signals from 48 channel digital tracks, signals from the TC track, CTL track, and two CUE signal tracks.

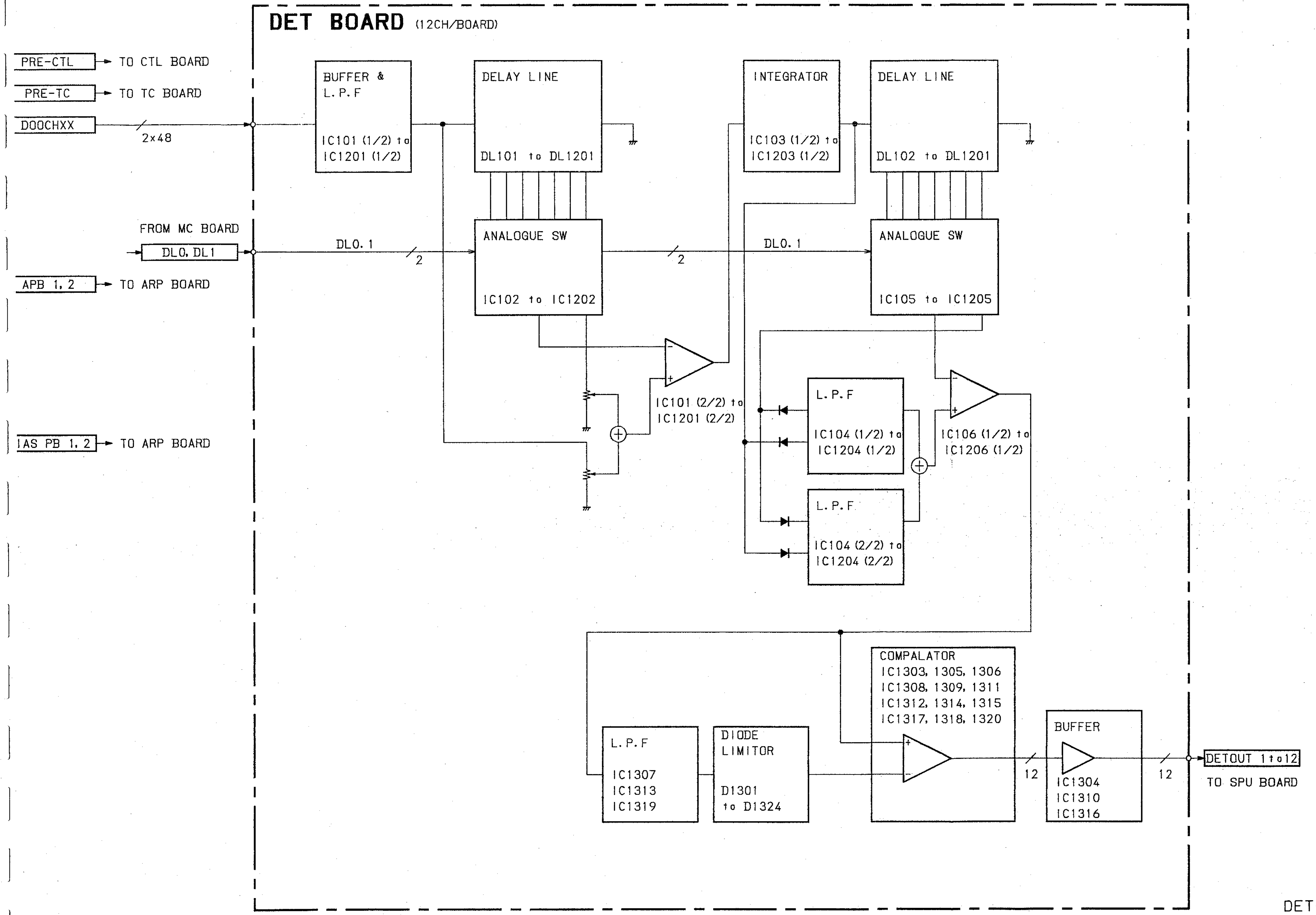
[Block description]

The DIGITAL track signal is amplified by 89 dB in total by the stepup transformer with volume ratio 1:9 and pre-amplifier IC DASH010. T1 through T48 and IC1 through IC48 in the circuit correspond to the blocks mentioned above.
The circuits of the TC and CTL tracks are the same as those of DIGITAL tracks. The circuit for the TC track is composed of T49 and IC49, and the circuit for the CTL track is composed of T50 and IC50.
Each circuit of the two CUE tracks (which are called AUX1 and AUX4 in DASH format) has two amplifiers, which are common to AUX1 and AUX4 because the functions of AUX1 and AUX4 are the same.
One of these two amplifiers amplifies the signal recorded on the CUE track in PWM using the PCM-3348, and the other amplifies the bias recorded signal recorded with the PCM-3324. Therefore, the former amplifies the signal whose carrier of 96 kHz is modulated in PWM, and the latter amplifies the signal in the ordinary audio frequency range.
For the signal recorded in PWM, a wide frequency range is required to reproduce it from slow speed to a high speed of 5 times normal speed in shuttle mode. For bias playback,an integral characteristics circuit is required in the block to flatten the frequency response caused by the differential characteristics of the PB head. This pre-amplifier is equipped with the circuit.
For the CUE tracks, two circuits are furnished, one for PWM and the other for bias playback. The signal from the head is switched by the relay and supplied to the amplifier. To activate the relay, the signal called "BIAS CT" is supplied from the ARP-2 board. By setting the switch on the front panel of the ARP-2 board, the replay on the PRE-1 board is switched and either PWM or BIAS can be selected.
Therefore, the signal recorded on the CUE track using the PCM-3324 can be played back.
In the circuit diagram, TA51, TA52, and IC51, 52, 61, 62 are for the transformer and amplifier for PWM playback, and the TB51, TB52 and IC54, 55, 56 are for bias playback.
Names of output lines of each amplifier are shown below.

DIGITAL amplifier	D△△CH XX—*	
CTL amplifier	PRE-CTL	
TC amplifier	PRE-TC	
PWM amplifier (AUX1)		APB 1
PWM amplifier (AUX 4)		APB 2
Bias (AUX1)	BIAS PB 1	
Bias (AUX4)	BIAS PB 2	

*D△△CH XX: △△indicates the tape and track numbers, and XX indicates the channels numbers.


PRE BOARD
((DIGITAL 48CH+CTL+TC+A1+A2) /BOARD)
REPRODUCE HEAD
STEP UP TRANSFORMER
T1 to T50
AMP
IC1 to IC50
CTL
TC
DIGITAL
2×50
PRE-CTL
PRE-TC
DOOCHXX
TO
STEP UP TRANSFORMER
TA51, TA52
AMP
IC51, 52, 61, 62
A1, A2
PWM
2×2
APB 1, 2
STEP UP TRANSFORMER
TB51, TB52
AMP
IC54 to IC56
A1, A2
BIAS
2×2
BIAS PB 1, 2
BIAS CT
FROM ARP BOARD
RELAY
+12V
-12V
+15V
GND
-15V
FROM POWER SUPPLY
VOLTAGE REGULATOR
IC1
+12V
VOLTAGE REGULATOR
IC2
GND
-12V
FL-60 BOARD


DET BOARD (12CH/BOARD)
PRE-CTL
TO CTL BOARD
PRE-TC
TO TC BOARD
DOOCHXX
2×48
FROM MC BOARD
DL0, DL1
APB 1, 2
TO ARP BOARD
IAS PB 1, 2
TO ARP BOARD
BUFFER & L.P.F
IC101 (1/2) to IC1201 (1/2)
DELAY LINE
DL101 to DL1201
ANALOGUE SW
IC102 to IC1202
DL0, 1
2
IC101 (2/2) to IC1201 (2/2)
INTEGRATOR
IC103 (1/2) to IC1203 (1/2)
DELAY LINE
DL102 to DL1201
ANALOGUE SW
IC105 to IC1205
DL0, 1
2
L.P.F
IC104 (1/2) to IC1204 (1/2)
L.P.F
IC104 (2/2) to IC1204 (2/2)
IC106 (1/2) to IC1206 (1/2)
COMPALATOR
IC1303, 1305, 1306
IC1308, 1309, 1311
IC1312, 1314, 1315
IC1317, 1318, 1320
L.P.F
IC1307
IC1313
IC1319
DIODE LIMITOR
D1301 to D1324
BUFFER
IC1304
IC1310
IC1316
12
12
DETOUT 1to12
TO SPU BOARD

DET-6 (FL-60, PRE-1) BOARD BLOCK DIAGRAM
PCM-3348

DIO-5 BOARD

[Outline]

These boards accept external serial data of 48 channels (with 2 boards, 24 channels each) conforming to the Sony Digital I/O Format through the RS-422 receiver. The serial data is converted into parallel data at DASH006, is delayed for 3 words and is output to the EDIT INPUT BUS.
The boards also receive 48 time-divided parallel data from EDIT, delay it for 4 words, convert it into serial data conforming to the Sony Digital I/O Format at DASH007 and feed it out through the RS-422 driver.

[Block description]

1. DIGITAL-INPUT

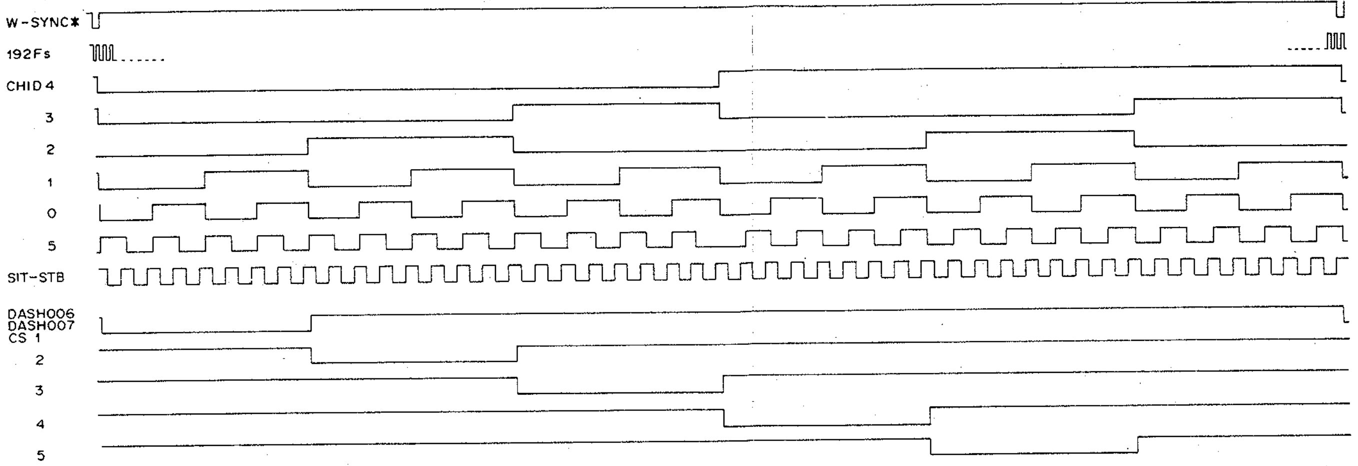
This block divides 48 channels into each 24 channels, channels 1 - 24 and channels 25 - 48, and inputs them to Board 1 (DI01) and Board 2 (DI02), respectively.
The channels separately input to the two boards are further divided into each 4 channels and are input to DASH006 (six LSIs). At DASH006, serial data is converted into parallel data and audio data of 16 bits, and flag data of 4 bits (two emphasis bits, one dubbing prohibit bit and one DIN ACTIVE bit) are extracted.
By using CH ID0 and CH ID1 as the CHANNEL ADDRESS of DASH006 and inputting the signal obtained by decoding CHID2, CHID3 and CHID4 as the CHIP SELECT of DASH006, 24-channel parallel data can be 24-time-divided by 1 word. (Fig.1)
The 24-time-divided parallel data is delayed for 3 words in the RAM, is read-latched in the OUTPUT BUFFER, and is output to the EDIT INPUT BUS. (Fig.2)
When two boards are connected by using CH ID5 as Board ENABLE (Board 1 ENABLE*: CHID5, Board 2 ENABLE*: CHID5*), 48-time-division is performed on the BUS.

2. INPUT SELECT

This block checks information on the INPUT SELECT (ALL ANALOG INDIVIDUAL or ALL DIGITAL) of the PCM-3348 operation panel and information on SW (AIN - DIN) on the DIO-5 board panel to know if the respective channel input is ANALOG IN or DIGITAL IN. This input is sent as serial data via EDIT to the AD-25 board, controlling the EDIT INPUT BUS.

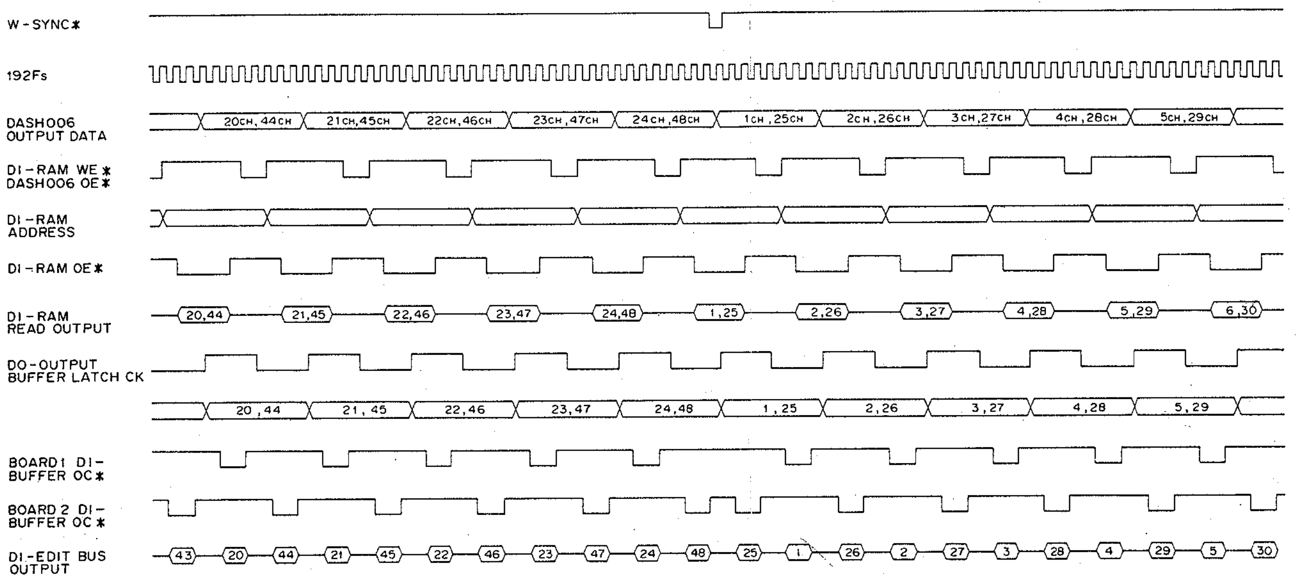
3. DIGITAL OUTPUT

This block receives 48-time-divided parallel audio data of 16 bits and one Emphasis bit. They are delayed for 4 words in the RAM and are input to DASH007. At DASH007, by using CH IDO and CH ID1 as CHANNEL ADDRESS and the signals obtained by decoding CHID2, CHID3 and CHID4 as CHIP SELECT (Fig.3), time-divided data can be latched to the respective channels and be converted into serial data conforming to the Sony Digital I/O Format.
The serial data from DASH007 is output through the RS-422 driver.


W-SYNC*
192Fs
CHID 4
3
2
1
0
5
SIT-STB
DASH006
DASH007
CS 1
2
3
4
5
6

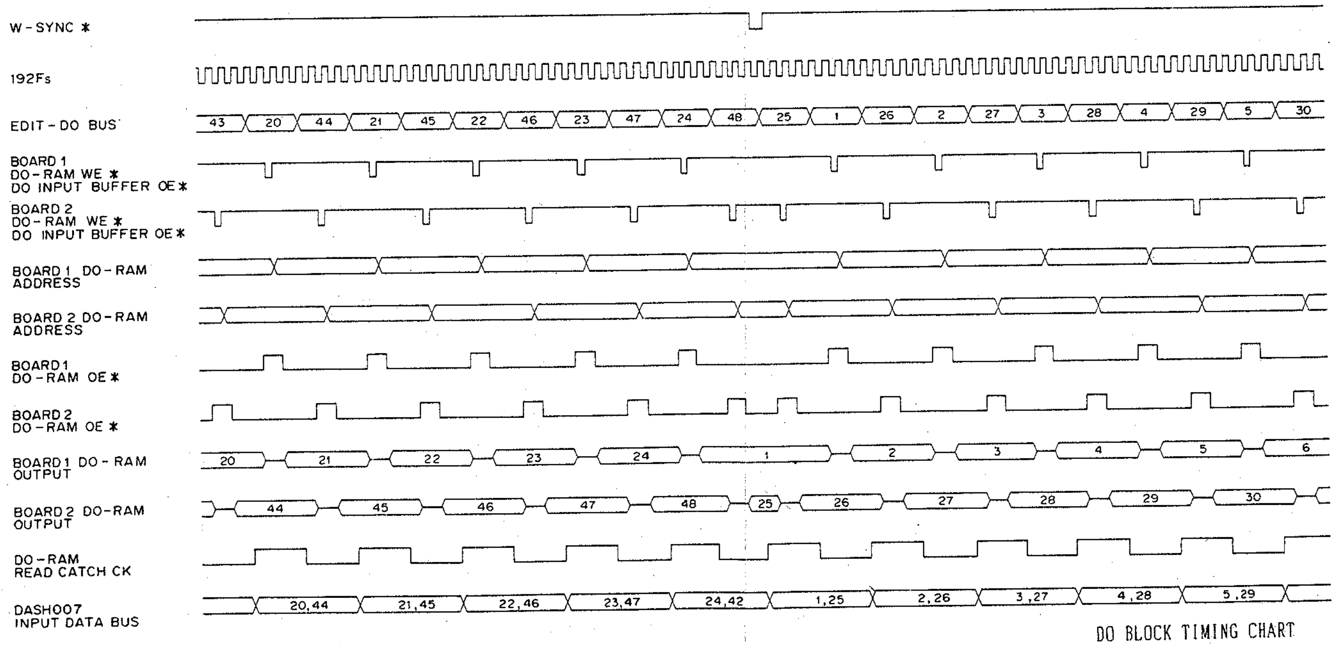
CHANNEL ADDRESS TIMING CHART

<Fig. 1>


W-SYNC*
192Fs
DASH006 OUTPUT DATA
DI-RAM WE*
DASH006 OE*
DI-RAM ADDRESS
DI-RAM OE*
DI-RAM READ OUTPUT
DO-OUTPUT BUFFER LATCH CK
BOARD1 DI-BUFFER OC*
BOARD 2 DI-BUFFER OC*
DI-EDIT BUS OUTPUT

DI BLOCK TIMING CHART

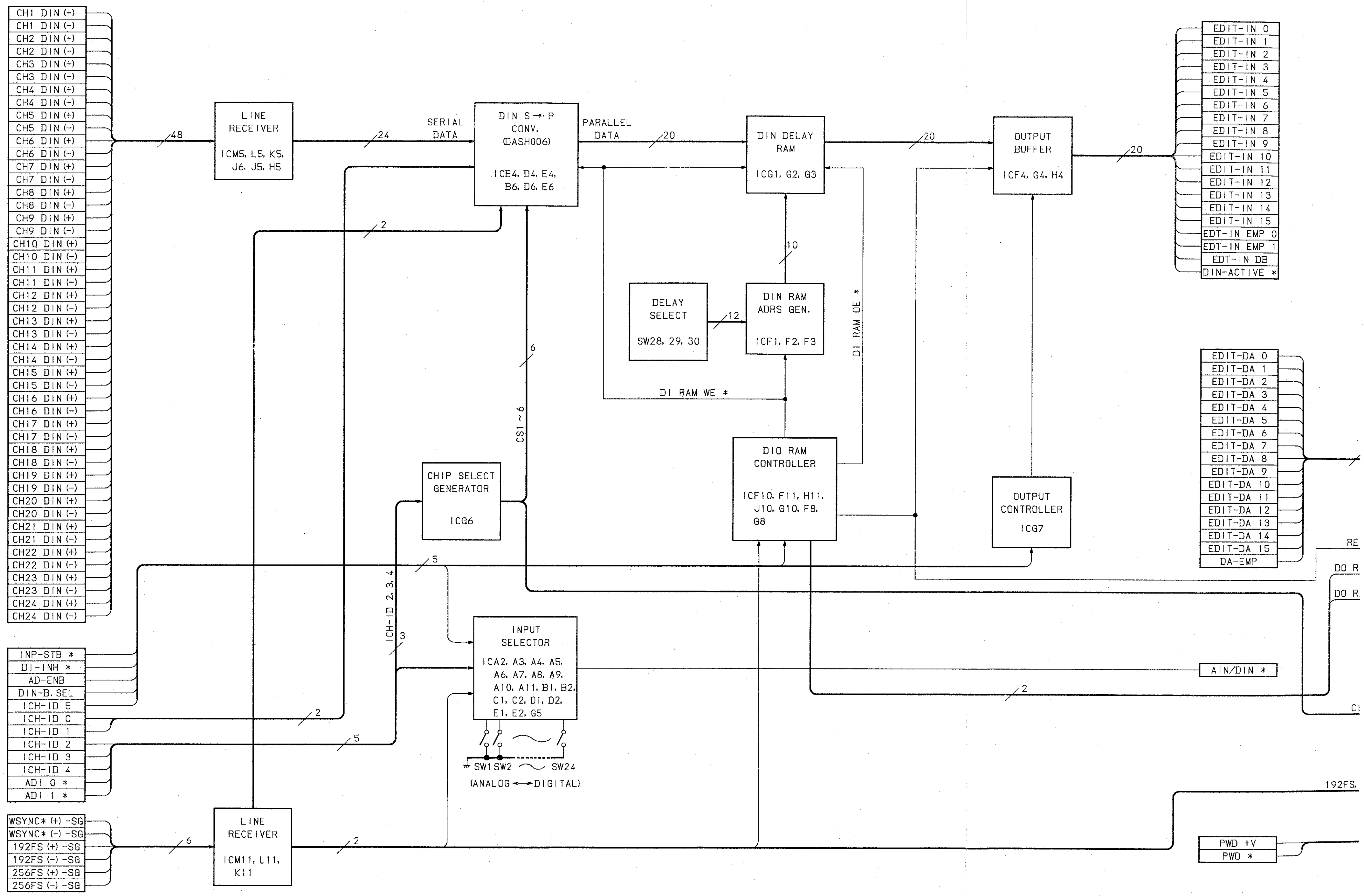
<Fig. 2>

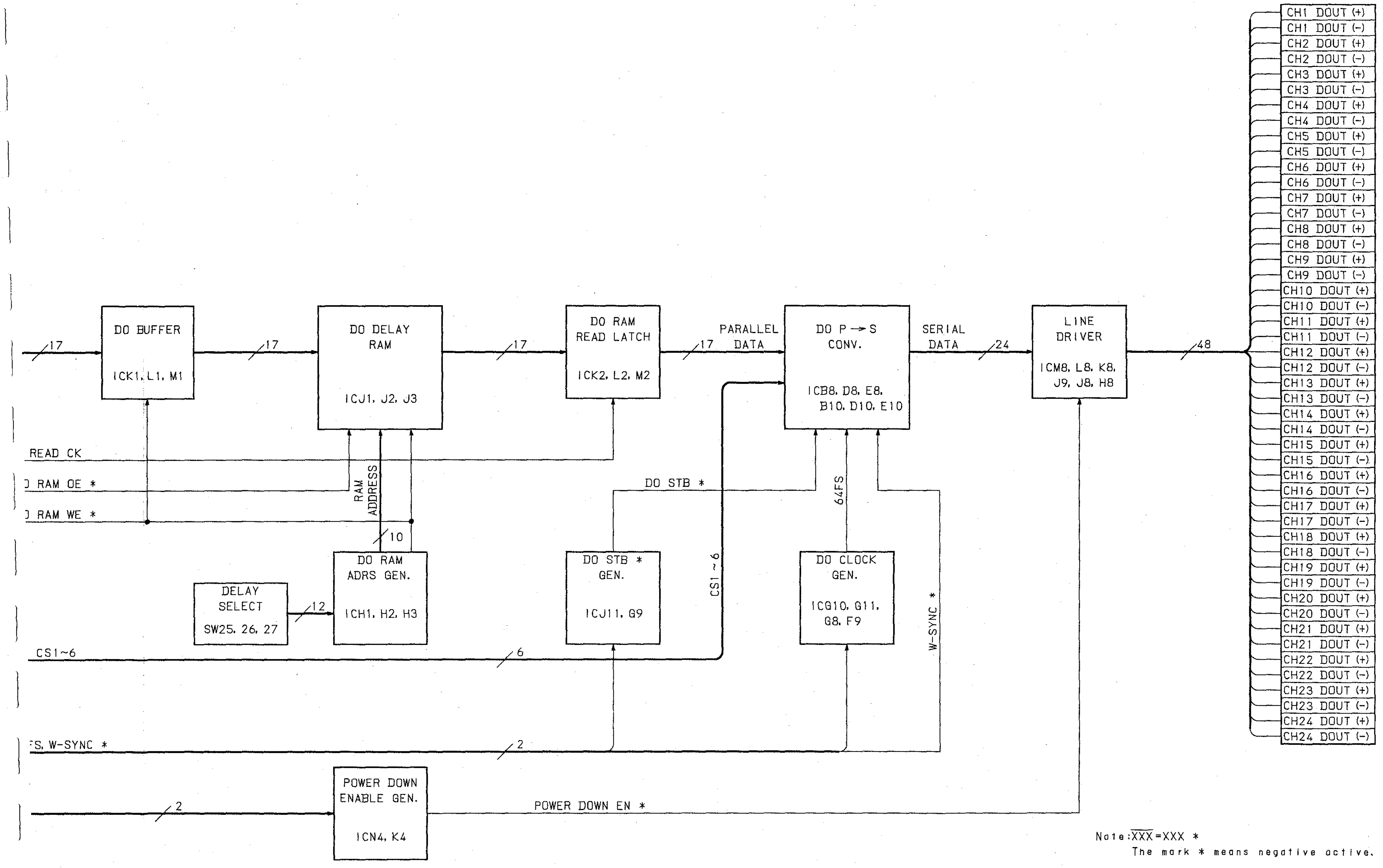

W-SYNC *
192Fs
EDIT-DO BUS
BOARD 1 DO-RAM WE * DO INPUT BUFFER OE*
BOARD 2 DO-RAM WE * DO INPUT BUFFER OE*
BOARD 1 DO-RAM ADDRESS
BOARD 2 DO-RAM ADDRESS
BOARD1 DO-RAM OE*
BOARD2 DO-RAM OE *
BOARD1 DO-RAM OUTPUT
BOARD2 DO-RAM OUTPUT
DO-RAM READ CATCH CK
DASH007 INPUT DATA BUS

DO BLOCK TIMING CHART

<Fig. 3>

(CARD RACK) BLOCK DIAGRAM DIO-5 (CARD RACK) DIO-5 BLOCK DIAGRAM


CH1 DIN (+)
CH1 DIN (-)
CH2 DIN (+)
CH2 DIN (-)
CH3 DIN (+)
CH3 DIN (-)
CH4 DIN (+)
CH4 DIN (-)
CH5 DIN (+)
CH5 DIN (-)
CH6 DIN (+)
CH6 DIN (-)
CH7 DIN (+)
CH7 DIN (-)
CH8 DIN (+)
CH8 DIN (-)
CH9 DIN (+)
CH9 DIN (-)
CH10 DIN (+)
CH10 DIN (-)
CH11 DIN (+)
CH11 DIN (-)
CH12 DIN (+)
CH12 DIN (-)
CH13 DIN (+)
CH13 DIN (-)
CH14 DIN (+)
CH14 DIN (-)
CH15 DIN (+)
CH15 DIN (-)
CH16 DIN (+)
CH16 DIN (-)
CH17 DIN (+)
CH17 DIN (-)
CH18 DIN (+)
CH18 DIN (-)
CH19 DIN (+)
CH19 DIN (-)
CH20 DIN (+)
CH20 DIN (-)
CH21 DIN (+)
CH21 DIN (-)
CH22 DIN (+)
CH22 DIN (-)
CH23 DIN (+)
CH23 DIN (-)
CH24 DIN (+)
CH24 DIN (-)
48
LINE RECEIVER
ICM5, L5, K5, J6, J5, H5
24
SERIAL DATA
DIN S→P CONV. (DASH006)
ICB4, D4, E4, B6, D6, E6
PARALLEL DATA
20
DIN DELAY RAM
ICG1, G2, G3
20
OUTPUT BUFFER
ICF4, G4, H4
20
EDIT-IN 0
EDIT-IN 1
EDIT-IN 2
EDIT-IN 3
EDIT-IN 4
EDIT-IN 5
EDIT-IN 6
EDIT-IN 7
EDIT-IN 8
EDIT-IN 9
EDIT-IN 10
EDIT-IN 11
EDIT-IN 12
EDIT-IN 13
EDIT-IN 14
EDIT-IN 15
EDT-IN EMP 0
EDT-IN EMP 1
EDT-IN DB
DIN-ACTIVE *
2
10
DELAY SELECT
SW28, 29, 30
12
DIN RAM ADRS GEN.
ICF1, F2, F3
DI RAM OE *
6
DI RAM WE *
CS1 ~ 6
DIO RAM CONTROLLER
ICF10, F11, H11, J10, G10, F8, G8
CHIP SELECT GENERATOR
ICG6
OUTPUT CONTROLLER
ICG7
EDIT-DA 0
EDIT-DA 1
EDIT-DA 2
EDIT-DA 3
EDIT-DA 4
EDIT-DA 5
EDIT-DA 6
EDIT-DA 7
EDIT-DA 8
EDIT-DA 9
EDIT-DA 10
EDIT-DA 11
EDIT-DA 12
EDIT-DA 13
EDIT-DA 14
EDIT-DA 15
DA-EMP
RE
DO R
DO R
5
ICH-ID 2, 3, 4
3
INPUT SELECTOR
ICA2, A3, A4, A5, A6, A7, A8, A9, A10, A11, B1, B2, C1, C2, D1, D2, E1, E2, G5
AIN/DIN *
2
CS
INP-STB *
DI-INH *
AD-ENB
DIN-B. SEL
ICH-ID 5
ICH-ID 0
ICH-ID 1
ICH-ID 2
ICH-ID 3
ICH-ID 4
ADI 0 *
ADI 1 *
2
5
SW1 SW2 ~ SW24
(ANALOG ←→ DIGITAL)
192FS
WSYNC* (+) -SG
WSYNC* (-) -SG
192FS (+) -SG
192FS (-) -SG
256FS (+) -SG
256FS (-) -SG
6
LINE RECEIVER
ICM11, L11, K11
2
PWD +V
PWD *


17
DO BUFFER
ICK1, L1, M1
17
DO DELAY RAM
ICJ1, J2, J3
17
DO RAM READ LATCH
ICK2, L2, M2
17
PARALLEL DATA
DO P → S CONV.
ICB8, D8, E8, B10, D10, E10
SERIAL DATA
24
LINE DRIVER
ICM8, L8, K8, J9, J8, H8
48
CH1 DOUT (+)
CH1 DOUT (-)
CH2 DOUT (+)
CH2 DOUT (-)
CH3 DOUT (+)
CH3 DOUT (-)
CH4 DOUT (+)
CH4 DOUT (-)
CH5 DOUT (+)
CH5 DOUT (-)
CH6 DOUT (+)
CH6 DOUT (-)
CH7 DOUT (+)
CH7 DOUT (-)
CH8 DOUT (+)
CH8 DOUT (-)
CH9 DOUT (+)
CH9 DOUT (-)
CH10 DOUT (+)
CH10 DOUT (-)
CH11 DOUT (+)
CH11 DOUT (-)
CH12 DOUT (+)
CH12 DOUT (-)
CH13 DOUT (+)
CH13 DOUT (-)
CH14 DOUT (+)
CH14 DOUT (-)
CH15 DOUT (+)
CH15 DOUT (-)
CH16 DOUT (+)
CH16 DOUT (-)
CH17 DOUT (+)
CH17 DOUT (-)
CH18 DOUT (+)
CH18 DOUT (-)
CH19 DOUT (+)
CH19 DOUT (-)
CH20 DOUT (+)
CH20 DOUT (-)
CH21 DOUT (+)
CH21 DOUT (-)
CH22 DOUT (+)
CH22 DOUT (-)
CH23 DOUT (+)
CH23 DOUT (-)
CH24 DOUT (+)
CH24 DOUT (-)
READ CK
RAM OE *
RAM WE *
RAM ADDRESS
10
DO STB *
64FS
CS1~6
W-SYNC *
DO RAM ADRS GEN.
ICH1, H2, H3
DELAY SELECT
SW25, 26, 27
12
DO STB * GEN.
ICJ11, G9
DO CLOCK GEN.
ICG10, G11, G8, F9
CS1~6
6
FS, W-SYNC *
2
2
POWER DOWN ENABLE GEN.
ICN4, K4
POWER DOWN EN *

Note : $\overline{XXX}$ = XXX *
The mark * means negative active.

DIO-5 BOARD BLOCK DIAGRAM
PCM-3348

)-19 BOARD

e major function of this board is to process and ange the recording signals to be sent to the CODER block of the SPU-1 board and the nitor output signals to be sent to DA, DO board using the playback signals supplied from the U-1 board and the input signals from AD, DI ard.

erage-value interpolating front-end HOLD by an erpolator is applied as required to the 48-channel ie-divided 16-bit signals sent from the SPU-1 ard after error correction. The signals then enter a bits x 16 bits multiplexer.

this multiplexer, cross-fade in SPLICE, MUTE ocessing and FADE-IN processing at audio starts, oviding playback signals.

ese playback signals are delayed for 250 W in the M for ADVANCED OUT and then pass through A/D and D/A delay compensation circuits, oviding playback signals for the PUNCH-IN ss-fader. Signals for DIGITAL COPY are multaneously obtained by a RAM address operan.

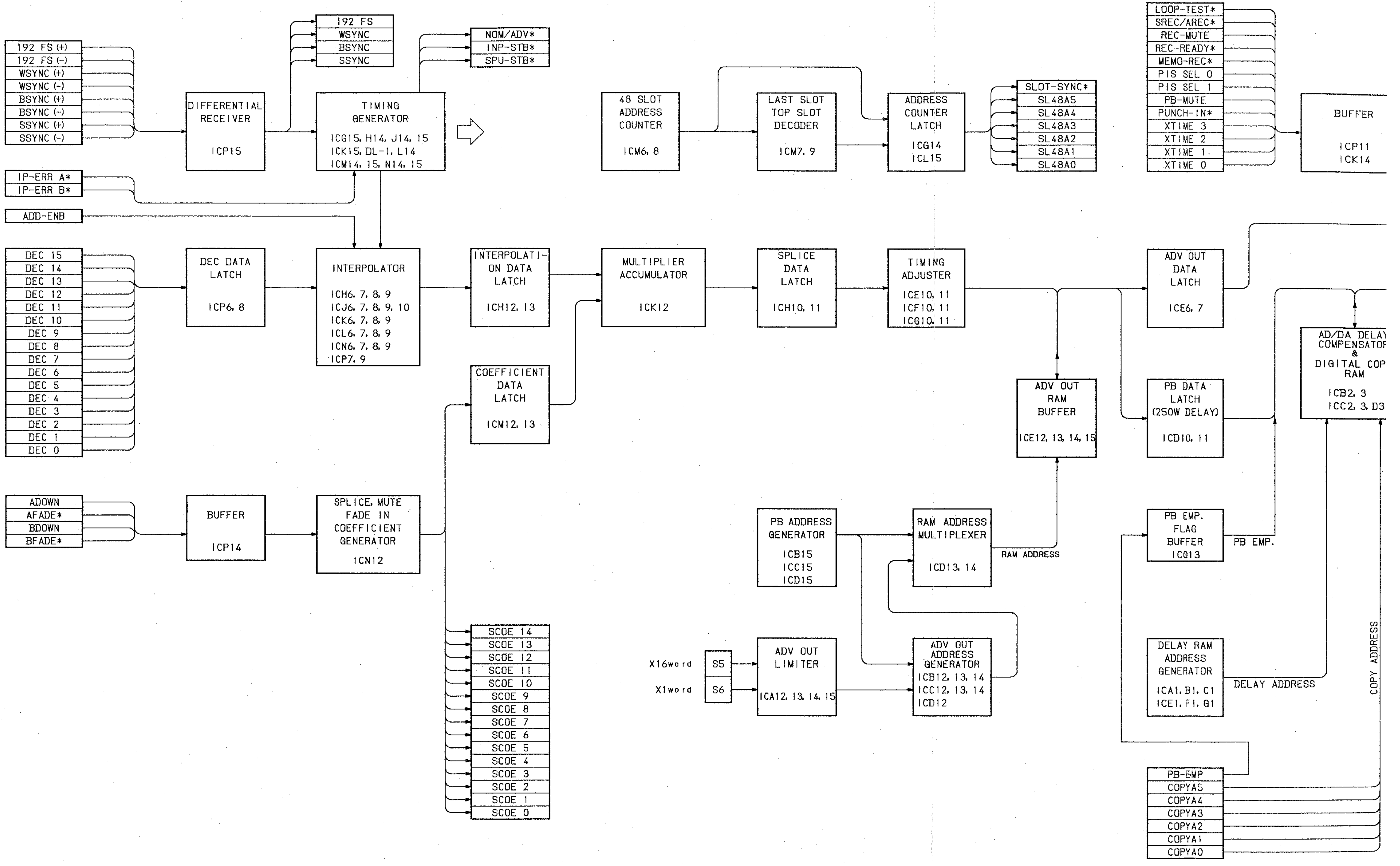
r the 48-channel time-divided 16-bit signals fed m the AD, DI board, timing adjustment and test e wave and random pattern selections are permed, providing input signals.

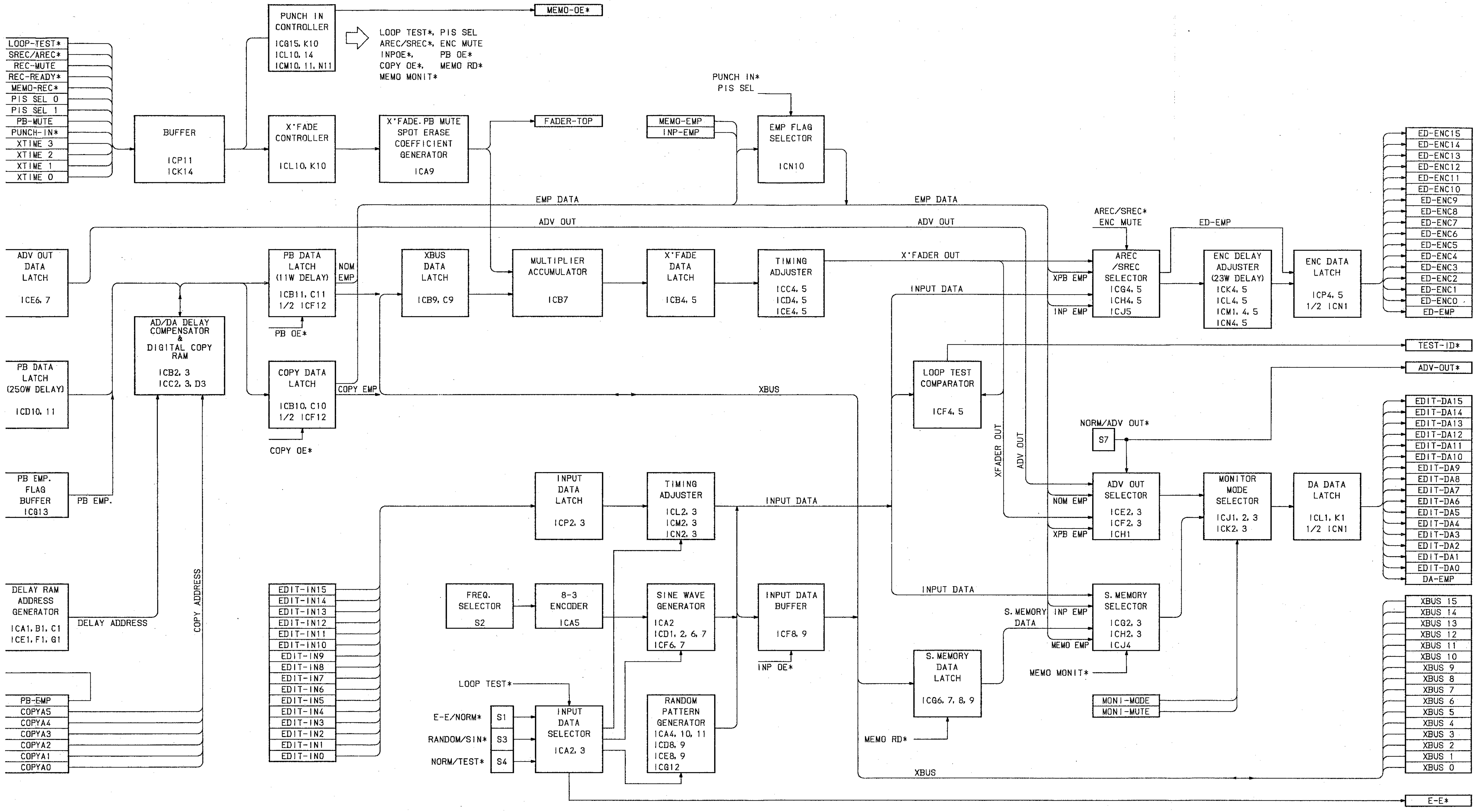
e test pattern selection is performed with S4 and sine wave and RANDOM pattern selections are formed with S3. For the sine wave test pattern, , 4K, 10K or 20K can be designated with S2.

e digital copy signal, the input signal and the UND MEMORY signal fed from the ED-20 ard are selected according to the mode, providing -slot time-divided 16-bit signal X BUS by timeiding with the playback signals for the PUNCH- cross-fader.

e PUNCH-IN cross-fade is performed by input- g this X BUS to a multiplexer and multiplexing it the output of the Cross-fade factor generation cuit to provide a cross-fader output signal.

e cross-fader output signal and the input signal are itched by SYNC REC or ADVANCED REC, and sent to the ENCODER block of the SPU-1 board the signal to be recorded. The cross-fader output nal, the RAM output signal of the RAM for VANCED OUT, the input signal and the UND MEMORY signal obtained from X BUS selected, providing a monitor output signal to be l to the DA, DO board.


192 FS (+)
192 FS (-)
WSYNC (+)
WSYNC (-)
BSYNC (+)
BSYNC (-)
SSYNC (+)
SSYNC (-)
DIFFERENTIAL RECEIVER ICP15
192 FS
WSYNC
BSYNC
SSYNC
TIMING GENERATOR ICG15, H14, J14, 15 ICK15, DL-1, L14 ICM14, 15, N14, 15
NOM/ADV*
INP-STB*
SPU-STB*
IP-ERR A*
IP-ERR B*
ADD-ENB
DEC 15
DEC 14
DEC 13
DEC 12
DEC 11
DEC 10
DEC 9
DEC 8
DEC 7
DEC 6
DEC 5
DEC 4
DEC 3
DEC 2
DEC 1
DEC 0
DEC DATA LATCH ICP6, 8
INTERPOLATOR ICH6, 7, 8, 9 ICJ6, 7, 8, 9, 10 ICK6, 7, 8, 9 ICL6, 7, 8, 9 ICN6, 7, 8, 9 ICP7, 9
INTERPOLATION DATA LATCH ICH12, 13
COEFFICIENT DATA LATCH ICM12, 13
ADOWN
AFADE*
BDOWN
BFADE*
BUFFER ICP14
SPLICE, MUTE FADE IN COEFFICIENT GENERATOR ICN12
SCOE 14
SCOE 13
SCOE 12
SCOE 11
SCOE 10
SCOE 9
SCOE 8
SCOE 7
SCOE 6
SCOE 5
SCOE 4
SCOE 3
SCOE 2
SCOE 1
SCOE 0
48 SLOT ADDRESS COUNTER ICM6, 8
LAST SLOT TOP SLOT DECODER ICM7, 9
ADDRESS COUNTER LATCH ICG14 ICL15
SLOT-SYNC*
SL48A5
SL48A4
SL48A3
SL48A2
SL48A1
SL48A0
MULTIPLIER ACCUMULATOR ICK12
SPLICE DATA LATCH ICH10, 11
TIMING ADJUSTER ICE10, 11 ICF10, 11 ICG10, 11
ADV OUT RAM BUFFER ICE12, 13, 14, 15
PB ADDRESS GENERATOR ICB15 ICC15 ICD15
RAM ADDRESS MULTIPLEXER ICD13, 14
RAM ADDRESS
X16word
X1word
S5
S6
ADV OUT LIMITER ICA12, 13, 14, 15
ADV OUT ADDRESS GENERATOR ICB12, 13, 14 ICC12, 13, 14 ICD12
LOOP-TEST*
SREC/AREC*
REC-MUTE
REC-READY*
MEMO-REC*
PIS SEL 0
PIS SEL 1
PB-MUTE
PUNCH-IN*
XTIME 3
XTIME 2
XTIME 1
XTIME 0
BUFFER ICP11 ICK14
ADV OUT DATA LATCH ICE6, 7
PB DATA LATCH (250W DELAY) ICD10, 11
AD/DA DELAY COMPENSATOR & DIGITAL COP RAM ICB2, 3 ICC2, 3, D3
PB EMP. FLAG BUFFER ICG13
PB EMP.
DELAY RAM ADDRESS GENERATOR ICA1, B1, C1 ICE1, F1, G1
DELAY ADDRESS
COPY ADDRESS
PB-EMP
COPYA5
COPYA4
COPYA3
COPYA2
COPYA1
COPYA0

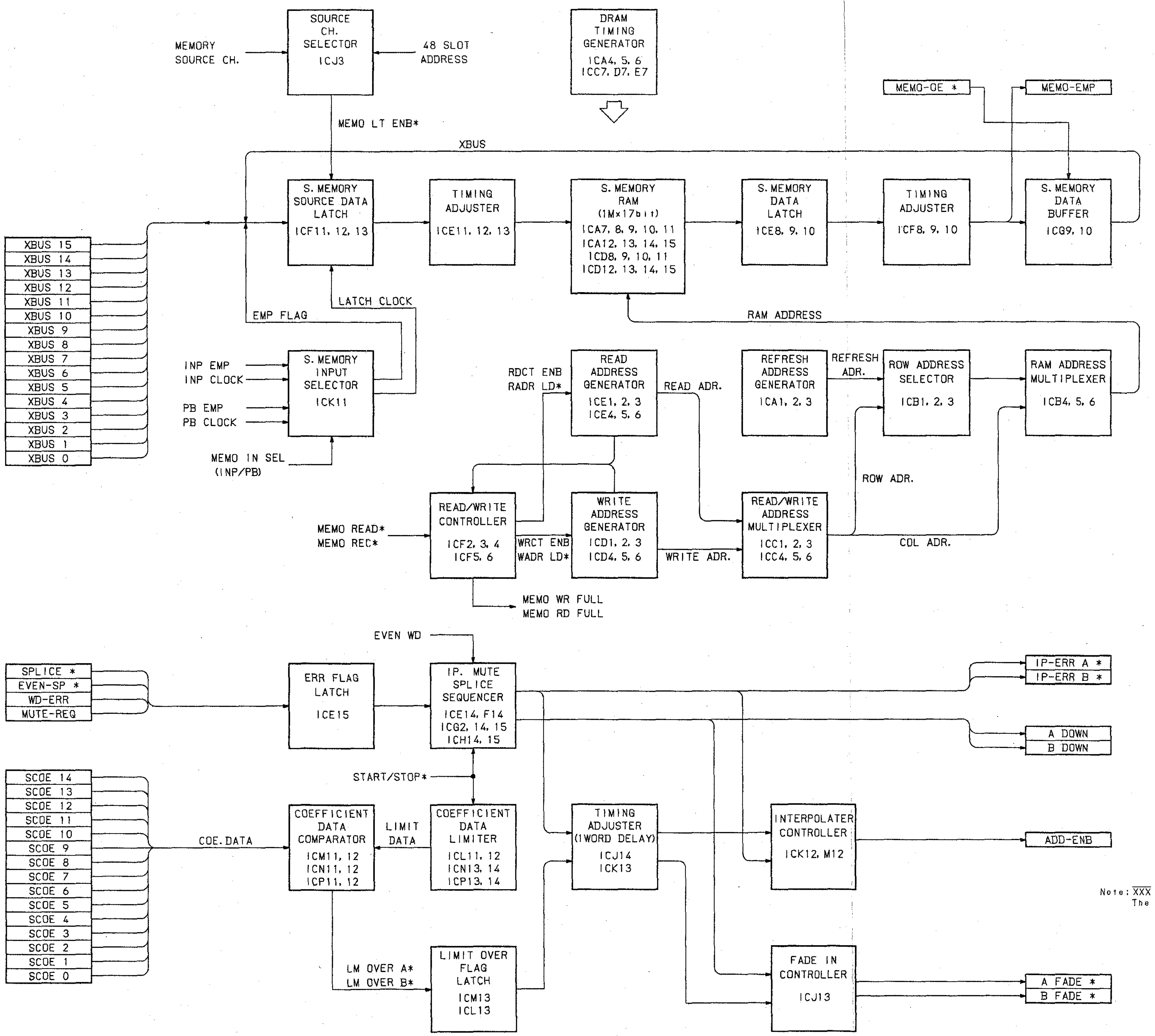

LOOP-TEST*
SREC/AREC*
REC-MUTE
REC-READY*
MEMO-REC*
PIS SEL 0
PIS SEL 1
PB-MUTE
PUNCH-IN*
XTIME 3
XTIME 2
XTIME 1
XTIME 0
BUFFER
ICP11
ICK14
PUNCH IN CONTROLLER
ICG15, K10
ICL10, 14
ICM10, 11, N11
MEMO-OE*
LOOP TEST*, PIS SEL
AREC/SREC*, ENC MUTE
INPOE*, PB OE*
COPY OE*, MEMO RD*
MEMO MONIT*
X'FADE CONTROLLER
ICL10, K10
X'FADE. PB MUTE SPOT ERASE COEFFICIENT GENERATOR
ICA9
FADER-TOP
MEMO-EMP
INP-EMP
PUNCH IN*
PIS SEL
EMP FLAG SELECTOR
ICN10
EMP DATA
ADV OUT
ADV OUT DATA LATCH
ICE6, 7
PB DATA LATCH (11W DELAY)
ICB11, C11
1/2 ICF12
NOM EMP
PB OE*
XBUS DATA LATCH
ICB9, C9
MULTIPLIER ACCUMULATOR
ICB7
X'FADE DATA LATCH
ICB4, 5
TIMING ADJUSTER
ICC4, 5
ICD4, 5
ICE4, 5
X'FADER OUT
INPUT DATA
AREC/SREC*
ENC MUTE
ED-EMP
XPB EMP
INP EMP
AREC /SREC SELECTOR
ICG4, 5
ICH4, 5
ICJ5
ENC DELAY ADJUSTER (23W DELAY)
ICK4, 5
ICL4, 5
ICM1, 4, 5
ICN4, 5
ENC DATA LATCH
ICP4, 5
1/2 ICN1
ED-ENC15
ED-ENC14
ED-ENC13
ED-ENC12
ED-ENC11
ED-ENC10
ED-ENC9
ED-ENC8
ED-ENC7
ED-ENC6
ED-ENC5
ED-ENC4
ED-ENC3
ED-ENC2
ED-ENC1
ED-ENC0
ED-EMP
AD/DA DELAY COMPENSATOR & DIGITAL COPY RAM
ICB2, 3
ICC2, 3, D3
PB DATA LATCH (250W DELAY)
ICD10, 11
COPY DATA LATCH
ICB10, C10
1/2 ICF12
COPY EMP
COPY OE*
XBUS
LOOP TEST COMPARATOR
ICF4, 5
TEST-ID*
ADV-OUT*
XFADER OUT
ADV OUT
NORM/ADV OUT*
S7
PB EMP. FLAG BUFFER
ICG13
PB EMP.
INPUT DATA LATCH
ICP2, 3
TIMING ADJUSTER
ICL2, 3
ICM2, 3
ICN2, 3
INPUT DATA
NOM EMP
XPB EMP
ADV OUT SELECTOR
ICE2, 3
ICF2, 3
ICH1
MONITOR MODE SELECTOR
ICJ1, 2, 3
ICK2, 3
DA DATA LATCH
ICL1, K1
1/2 ICN1
EDIT-DA15
EDIT-DA14
EDIT-DA13
EDIT-DA12
EDIT-DA11
EDIT-DA10
EDIT-DA9
EDIT-DA8
EDIT-DA7
EDIT-DA6
EDIT-DA5
EDIT-DA4
EDIT-DA3
EDIT-DA2
EDIT-DA1
EDIT-DA0
DA-EMP
DELAY RAM ADDRESS GENERATOR
ICA1, B1, C1
ICE1, F1, G1
DELAY ADDRESS
COPY ADDRESS
EDIT-IN15
EDIT-IN14
EDIT-IN13
EDIT-IN12
EDIT-IN11
EDIT-IN10
EDIT-IN9
EDIT-IN8
EDIT-IN7
EDIT-IN6
EDIT-IN5
EDIT-IN4
EDIT-IN3
EDIT-IN2
EDIT-IN1
EDIT-IN0
FREQ. SELECTOR
S2
8-3 ENCODER
ICA5
SINE WAVE GENERATOR
ICA2
ICD1, 2, 6, 7
ICF6, 7
INPUT DATA BUFFER
ICF8, 9
INP OE*
INPUT DATA
S. MEMORY DATA
INP EMP
MEMO EMP
S. MEMORY SELECTOR
ICG2, 3
ICH2, 3
ICJ4
S. MEMORY DATA LATCH
ICG6, 7, 8, 9
MEMO MONIT*
MEMO RD*
MONI-MODE
MONI-MUTE
PB-EMP
COPYA5
COPYA4
COPYA3
COPYA2
COPYA1
COPYA0
LOOP TEST*
E-E/NORM*
S1
RANDOM/SIN*
S3
NORM/TEST*
S4
INPUT DATA SELECTOR
ICA2, 3
RANDOM PATTERN GENERATOR
ICA4, 10, 11
ICD8, 9
ICE8, 9
ICG12
XBUS
XBUS 15
XBUS 14
XBUS 13
XBUS 12
XBUS 11
XBUS 10
XBUS 9
XBUS 8
XBUS 7
XBUS 6
XBUS 5
XBUS 4
XBUS 3
XBUS 2
XBUS 1
XBUS 0
E-E*

Note; $\overline{\text{XXX}}$ =XXX *
The mark * means negative active

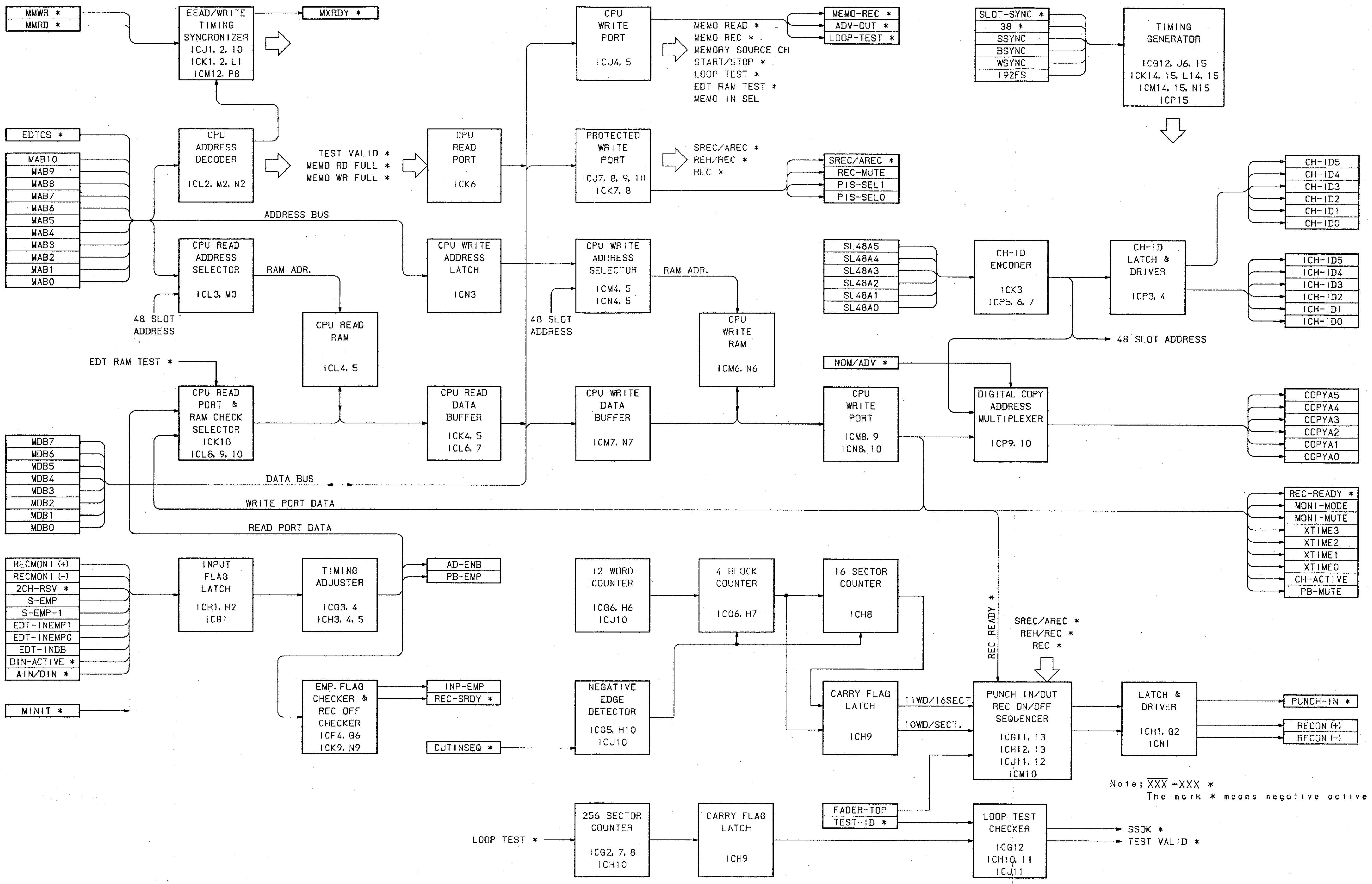
ED-19 BOARD BLOCK DIAGRAM
PCM-3348

ED-20 BOARD

The major function of the ED-20 board is to control the ED-19 board by interfacing with the MC-33 board. The board further has a SOUND MEMORY block which interfaces with the ED-19 board, the controller block which controls SPLICE, MUTE and FADE IN of the ED-19 board and the CUT IN SEQUENCER BLOCK which controls the REC timing.
The interface with the MC-33 board is performed using a data bus of 8 bits and an address bus of 11 bits. In the ED-20 board, two RAMs of 48 channels x 8 bits are provided both for CPU READ and CPU WRITE, performing READ and WRITE of 48-channel time-division control signals.
The control signals common to all channels are input and output through an 8-bit READ port and three 8-bit WRITE ports, controlling the ED-19 board.
The SOUND MEMORY block is connected to the ED-19 board through the X BUS or a 96-slot time-division signal.
Writing in the memory is performed by extracting the multiplexed playback signals and input signal by desired channel slots. Reading from the MEMORY is performed by applying the MEMORY output to the X BUS in place of the input signals. This memory signal on the X BUS becomes the input to the cross-fader input on the ED-19 board. The MEMORY block is composed of seventeen 1M DRAMs and permits music recording for about 20 seconds.
According to the condition of the ERROR flag from the SPU-1 board, the SPLICE and MUTE controller sends control signals to the interpolator and the SPLICE and MUTE cross-fader on the ED-19 board.
For the fade-in at audio starts, the coefficient of the multiplexer is sent from the ED 19-board. The fade-in is performed by comparing this coefficient with the value of the limiter and controlling the varying speed of the coefficient.
In the CUT IN SEQUENCER block, the REC ON signal to be fed to the REC-5 board and the PUNCH-IN signal to control the PUNCH-IN cross-fader of the ED-19 board are generated by using the 1/16 sector signal, CUT IN SEQ sent from the CTL-2 board.
The REC ON signal varies by 1 point in 16 sectors.


MEMORY SOURCE CH.
SOURCE CH. SELECTOR ICJ3
48 SLOT ADDRESS
DRAM TIMING GENERATOR ICA4, 5, 6 ICC7, D7, E7
MEMO-OE *
MEMO-EMP
MEMO LT ENB*
XBUS
S. MEMORY SOURCE DATA LATCH ICF11, 12, 13
TIMING ADJUSTER ICE11, 12, 13
S. MEMORY RAM (1M×17bit) ICA7, 8, 9, 10, 11 ICA12, 13, 14, 15 ICD8, 9, 10, 11 ICD12, 13, 14, 15
S. MEMORY DATA LATCH ICE8, 9, 10
TIMING ADJUSTER ICF8, 9, 10
S. MEMORY DATA BUFFER ICG9, 10
XBUS 15
XBUS 14
XBUS 13
XBUS 12
XBUS 11
XBUS 10
XBUS 9
XBUS 8
XBUS 7
XBUS 6
XBUS 5
XBUS 4
XBUS 3
XBUS 2
XBUS 1
XBUS 0
LATCH CLOCK
EMP FLAG
RAM ADDRESS
INP EMP
INP CLOCK
PB EMP
PB CLOCK
S. MEMORY INPUT SELECTOR ICK11
MEMO IN SEL (INP/PB)
RDCT ENB
RADR LD*
READ ADDRESS GENERATOR ICE1, 2, 3 ICE4, 5, 6
READ ADR.
REFRESH ADDRESS GENERATOR ICA1, 2, 3
REFRESH ADR.
ROW ADDRESS SELECTOR ICB1, 2, 3
RAM ADDRESS MULTIPLEXER ICB4, 5, 6
ROW ADR.
MEMO READ*
MEMO REC*
READ/WRITE CONTROLLER ICF2, 3, 4 ICF5, 6
WRCT ENB
WADR LD*
WRITE ADDRESS GENERATOR ICD1, 2, 3 ICD4, 5, 6
WRITE ADR.
READ/WRITE ADDRESS MULTIPLEXER ICC1, 2, 3 ICC4, 5, 6
COL ADR.
MEMO WR FULL
MEMO RD FULL
EVEN WD
SPLICE *
EVEN-SP *
WD-ERR
MUTE-REQ
ERR FLAG LATCH ICE15
IP. MUTE SPLICE SEQUENCER ICE14, F14 ICG2, 14, 15 ICH14, 15
IP-ERR A *
IP-ERR B *
A DOWN
B DOWN
START/STOP*
SCOE 14
SCOE 13
SCOE 12
SCOE 11
SCOE 10
SCOE 9
SCOE 8
SCOE 7
SCOE 6
SCOE 5
SCOE 4
SCOE 3
SCOE 2
SCOE 1
SCOE 0
COE. DATA
COEFFICIENT DATA COMPARATOR ICM11, 12 ICN11, 12 ICP11, 12
LIMIT DATA
COEFFICIENT DATA LIMITER ICL11, 12 ICN13, 14 ICP13, 14
TIMING ADJUSTER (1WORD DELAY) ICJ14 ICK13
INTERPOLATER CONTROLLER ICK12, M12
ADD-ENB
LM OVER A*
LM OVER B*
LIMIT OVER FLAG LATCH ICM13 ICL13
FADE IN CONTROLLER ICJ13
A FADE *
B FADE *

Note: $\overline{XXX}$ =XXX *
The mark * means negative acti


MMWR *
MMRD *
EEAD/WRITE TIMING SYNCRONIZER ICJ1, 2, 10 ICK1, 2, L1 ICM12, P8
MXRDY *
CPU WRITE PORT ICJ4, 5
MEMO READ *
MEMO REC *
MEMORY SOURCE CH
START/STOP *
LOOP TEST *
EDT RAM TEST *
MEMO IN SEL
MEMO-REC *
ADV-OUT *
LOOP-TEST *
SLOT-SYNC *
38 *
SSYNC
BSYNC
WSYNC
192FS
TIMING GENERATOR ICG12, J6, 15 ICK14, 15, L14, 15 ICM14, 15, N15 ICP15
EDTCS *
MAB10
MAB9
MAB8
MAB7
MAB6
MAB5
MAB4
MAB3
MAB2
MAB1
MAB0
CPU ADDRESS DECODER ICL2, M2, N2
TEST VALID *
MEMO RD FULL *
MEMO WR FULL *
CPU READ PORT ICK6
PROTECTED WRITE PORT ICJ7, 8, 9, 10 ICK7, 8
SREC/AREC *
REH/REC *
REC *
SREC/AREC *
REC-MUTE
PIS-SEL1
PIS-SEL0
CH-ID5
CH-ID4
CH-ID3
CH-ID2
CH-ID1
CH-ID0
ADDRESS BUS
CPU READ ADDRESS SELECTOR ICL3, M3
RAM ADR.
CPU WRITE ADDRESS LATCH ICN3
CPU WRITE ADDRESS SELECTOR ICM4, 5 ICN4, 5
RAM ADR.
SL48A5
SL48A4
SL48A3
SL48A2
SL48A1
SL48A0
CH-ID ENCODER ICK3 ICP5, 6, 7
CH-ID LATCH & DRIVER ICP3, 4
ICH-ID5
ICH-ID4
ICH-ID3
ICH-ID2
ICH-ID1
ICH-ID0
48 SLOT ADDRESS
CPU READ RAM ICL4, 5
48 SLOT ADDRESS
CPU WRITE RAM ICM6, N6
48 SLOT ADDRESS
EDT RAM TEST *
NOM/ADV *
CPU READ PORT & RAM CHECK SELECTOR ICK10 ICL8, 9, 10
CPU READ DATA BUFFER ICK4, 5 ICL6, 7
CPU WRITE DATA BUFFER ICM7, N7
CPU WRITE PORT ICM8, 9 ICN8, 10
DIGITAL COPY ADDRESS MULTIPLEXER ICP9, 10
COPYA5
COPYA4
COPYA3
COPYA2
COPYA1
COPYA0
MDB7
MDB6
MDB5
MDB4
MDB3
MDB2
MDB1
MDB0
DATA BUS
WRITE PORT DATA
READ PORT DATA
REC-READY *
MONI-MODE
MONI-MUTE
XTIME3
XTIME2
XTIME1
XTIME0
CH-ACTIVE
PB-MUTE
RECMONI (+)
RECMONI (-)
2CH-RSV *
S-EMP
S-EMP-1
EDT-INEMP1
EDT-INEMP0
EDT-INDB
DIN-ACTIVE *
AIN/DIN *
INPUT FLAG LATCH ICH1, H2 ICG1
TIMING ADJUSTER ICG3, 4 ICH3, 4, 5
AD-ENB
PB-EMP
12 WORD COUNTER ICG6, H6 ICJ10
4 BLOCK COUNTER ICG6, H7
16 SECTOR COUNTER ICH8
REC READY *
SREC/AREC *
REH/REC *
REC *
MINIT *
EMP. FLAG CHECKER & REC OFF CHECKER ICF4, G6 ICK9, N9
INP-EMP
REC-SRDY *
CUTINSEQ *
NEGATIVE EDGE DETECTOR ICG5, H10 ICJ10
CARRY FLAG LATCH ICH9
11WD/16SECT.
10WD/SECT.
PUNCH IN/OUT REC ON/OFF SEQUENCER ICG11, 13 ICH12, 13 ICJ11, 12 ICM10
LATCH & DRIVER ICH1, G2 ICN1
PUNCH-IN *
RECON (+)
RECON (-)
LOOP TEST *
256 SECTOR COUNTER ICG2, 7, 8 ICH10
CARRY FLAG LATCH ICH9
FADER-TOP
TEST-ID *
LOOP TEST CHECKER ICG12 ICH10, 11 ICJ11
SSOK *
TEST VALID *

$\overline{XXX}$ =XXX *
The mark * means negative active

Note; $\overline{XXX}$ =XXX *
The mark * means negative active

ED-20 BOARD BLOCK DIAGRAM
PCM-3348

MAE-1 BOARD

[Outline]

The MAE-1 board is composed of the 2CH DIO of the AES/EBU format and the ADIF-2 unbalanced format and the signal processing block for the main unit and an external remote meter.
These two blocks operate separately.

[Block description]

1. 2CH DIO signal processing block

DIN block
The 2CH DIN has the AES/EBU format and the SDIF-2 unbalanced format. Each of them has its own LSI. The AES/EBU uses CXD1146 (ICQ6), and the audio and flag data are extracted with the analog PLL.
The serial/parallel conversion of the audio data is performed, and the data is latched with the latch which also functions as an output buffer with the system WDCK, and is output to the EDIT DIN BUS.
The flag data passes the CRC checker and is output. Only the Fs and emphasis information of the flag data is used.
The SDIF-2 uses DASH006 (ICN6). As the output of the DASH006 is a parallel bus, the signal is output to the EDIT DIN BUS through the output buffer.
The SW on the board panel selects the data either of the AES/EBU or the SDIF-2.

DOUT block
The DOUT block supplies the data of the AES/EBU and the SDIF-2, which are the same. The parallel data from the EDIT DA BUS is latched, and after the P->S, S->P conversion, it is input to the AES/EBU DOUT CXD1146 (ICC1) and the SDIF-2 DOUT DASH007 (ICE1). The flag data of the AES/EBU is input to the ICC1 after the CRC.

DIO control block
Any 2CH can be selected by the channel display with the pulse SW and 7-segment LED for 48CH. The micro program code which is composed of the ROM and the LATCH, is advanced by the clock pulse generated by the pulse SW. From this micro program code, this block generates an interrupt signal to the EDIT DIN BUS in the DIN block (the control signal to set the output of the AD and multi DIN to high impedance when the data is output from the 2CH DIN to the EDIT DIN BUS), and the data latch signal from the EDIT DA BUS in the DO block.

2. Meter signal processing block

Maximum value detection of the audio data
The 2'S complementary data for 48 CH input from the EDIT DA BUS is changed to the absolute value data by reversing it by the most significant bit.
The maximum value of the 48 words is detected from this data. Then the input data and the data written in the RAM are compared by the comparator and multiplexer, and the data with the larger value is written in the RAM. Thus, the data that remains in the RAM is read every 48 words, and the data in the RAM is cleared.
The above process is performed for all data for 48 CH. The detection of the maximum value of the 48 words is performed because the signal processing after this step will be easy, and the detecting speed of 48 words (1 msec at Fs-48 kHz) is reasonable for human sensitivity.
The detected maximum value is directly output for an external meter, or is processed in segments for an internal meter.

Signal processing for an internal meter
An internal meter is a 16-segment meter with an attack time of 1 msec or less, and with a release time of 40 msec/seg. It is equipped with a two-second peak hold, peak hold, and calibration functions. The data obtained by detecting the maximum value is proccessed for the above funcions.
The segment No. conversion ROM (ICD6) decides the segment of the meter for the input data according to the NORM, 2sec, HOLD, or CAL mode.
The peak processing and VU processing are performed on the obtained segment No. data in the meter processing block and the timer processing block. Peak processing means the two-second hold and hold display processing.
VU processing means the processing of a release time of 40 msec/seg. The order of the channels of the processed data is changed so that it can easily be displayed, and the data is sent to the meter ROM (ICD11).
The meter ROM converts the processed segment No. data to the display image data of the 16-segment meter, i.e., the output data of the ROM is the display data for the meter.
P->S conversion is performed on the data, and the data is sent to the control panel display block.

Meter display flag processing
The meter signal processing block performs the word error processing for an external meter display. Based on the word error information sent from the SPU, this detects the interpolation, hold and mute from the consecutive error word numbers. This is the flag processing block.

3. Timing signal generation block

The MAE-1 board uses the master clocks of 256 Fs and 192 Fs. These signals are divided to generates the required timing signal.

CRC control signal generation block
Generates the control signal for the CRD generator and checker of the AES/EBU flag data.

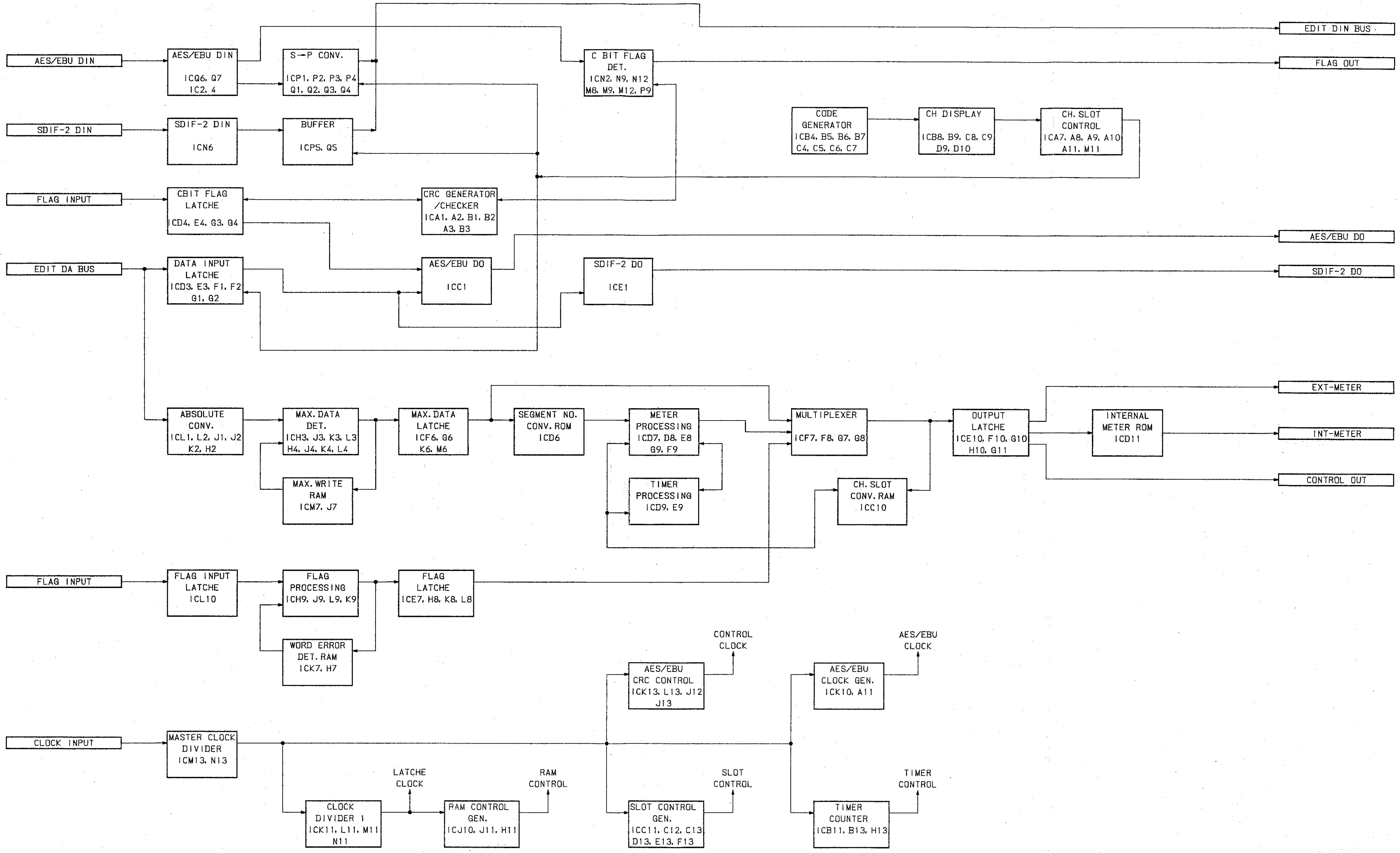
AES/EBU clock signal generation block
Generates the timing signal for the P->S and S->P conversion for data input and output of the AES/EBU DIO LSI, and the shift clock.

Clock divider 1
Generates the signal which processes the data of the 1-word 48 CH time-sharing bus.

RAM control signal generation block
Generates the RAM control signal to detectt the maximum value in 48 word period.

Slot control signal generation block
Generates the control signal for the RAM which changes the order of the data channels. This also generates the timing signal for the data output of the internal meter and the external meter.

Timer counter
Generates the timer clock signal of a long period such as the peak hold timer, VU release timer, flashing timer in CAL, etc.


AES/EBU DIN
AES/EBU DIN
ICQ6, Q7
IC2, 4
S→P CONV.
ICP1, P2, P3, P4
Q1, Q2, Q3, Q4
C BIT FLAG
DET.
ICN2, N9, N12
M8, M9, M12, P9
EDIT DIN BUS
FLAG OUT
SDIF-2 DIN
SDIF-2 DIN
ICN6
BUFFER
ICP5, Q5
CODE
GENERATOR
ICB4, B5, B6, B7
C4, C5, C6, C7
CH DISPLAY
ICB8, B9, C8, C9
D9, D10
CH. SLOT
CONTROL
ICA7, A8, A9, A10
A11, M11
FLAG INPUT
CBIT FLAG
LATCHE
ICD4, E4, G3, G4
CRC GENERATOR
/CHECKER
ICA1, A2, B1, B2
A3, B3
AES/EBU DO
EDIT DA BUS
DATA INPUT
LATCHE
ICD3, E3, F1, F2
G1, G2
AES/EBU DO
ICC1
SDIF-2 DO
ICE1
SDIF-2 DO
ABSOLUTE
CONV.
ICL1, L2, J1, J2
K2, H2
MAX. DATA
DET.
ICH3, J3, K3, L3
H4, J4, K4, L4
MAX. WRITE
RAM
ICM7, J7
MAX. DATA
LATCHE
ICF6, G6
K6, M6
SEGMENT NO.
CONV. ROM
ICD6
METER
PROCESSING
ICD7, D8, E8
G9, F9
TIMER
PROCESSING
ICD9, E9
MULTIPLEXER
ICF7, F8, G7, G8
CH. SLOT
CONV. RAM
ICC10
OUTPUT
LATCHE
ICE10, F10, G10
H10, G11
INTERNAL
METER ROM
ICD11
EXT-METER
INT-METER
CONTROL OUT
FLAG INPUT
FLAG INPUT
LATCHE
ICL10
FLAG
PROCESSING
ICH9, J9, L9, K9
WORD ERROR
DET. RAM
ICK7, H7
FLAG
LATCHE
ICE7, H8, K8, L8
CONTROL
CLOCK
AES/EBU
CLOCK
AES/EBU
CRC CONTROL
ICK13, L13, J12
J13
AES/EBU
CLOCK GEN.
ICK10, A11
CLOCK INPUT
MASTER CLOCK
DIVIDER
ICM13, N13
LATCHE
CLOCK
RAM
CONTROL
SLOT
CONTROL
TIMER
CONTROL
CLOCK
DIVIDER I
ICK11, L11, M11
N11
RAM CONTROL
GEN.
ICJ10, J11, H11
SLOT CONTROL
GEN.
ICC11, C12, C13
D13, E13, F13
TIMER
COUNTER
ICB11, B13, H13

MAE-1 BOARD BLOCK DIAGRAM
PCM-3348

MC-33/33A BOARD

RESET

Requests CPU RESET to the CLOCK GEN block by turning on the power, by turning on the RESET switch (SW3) or by activating MXRES*. (MXRES* is not used at present.)

READY CONT

Activates READY when the CPU accesses to peripheral devices.

1 WAIT TIMING

Generates a single wait state TW after the bus cycle T3 by activating READY for T2 of the CPU bus cycle when the CPU accesses to external I/O.

TIME OUT

When the CPU accesses to an external board, the CPU is automatically set to READY if no READY signal is generated within 16T on the accessed board. In this case, system bus access error interrupt IAERR is simultaneously generated.

CLOCK GEN

An oscillator using a 16-MHz crystal vibration element.

It provides 8 MHz and 4 MHz with frequency division.

It also supplies READY control signals and RESET signals to the CPU in synchronization with the CPU clock.

CPU

CMOS 16-bit microprocessor, 8 MHz clock.

ADRS LATCH

Since the address input/output of the CPU are controlled with time-division, the addresses are latched by the ASTB signal.

The address bus is fed out through another circuit of the same type.

BUS BUFFER

Since the data input/output of the CPU are controlled with time-division, data is latched by the DBEN signal. READ and WRITE are switched by a bi-directional buffer.

The data bus is fed out through another circuit of the same type.

BUS TEST

By shorting JP10, this block sets the data bus buffer to a high impedance and outputs a dummy instruction code 0 FDH with the MRD* timing to the CRU side of the data bus buffer, increasing the address.

TIMING GEN

Generates MRD*, MWR*, IOR* and IOW*.

ADRS DEC

Decodes the address bus and generates the chip select signals for the memory and I/O.

It also generates external access signals and send them to the 1 WAIT TIMING block.

RAM

Two high-speed 256K CMOS static RAMs are used.

MEMORY BACKUP

Supplies power for memory backup to the RAMs. (Two super-capacitor IFs are used.)

ROM

Four 256K CMOS EPROMs are used.

DIP SW, MC LED, MINIT CONTROLLER

Controls the DIP switches (SW1 and 2) input, the MC RUNNING LED output and the MINIT* signal output on the MC-33 board.

SYSTEM TIMER GEN

Generates the system clock (1 ms) for the CPU (software) by dividing 8 MHz and supplies it to the INTERRUPT CONTROLLER block.

INTERRUPT CONTROLLER

Uses two CXQ971059s in expansion mode.

The following is the interrupts in the order of priority.

I1M	Timer interrupt by the 1 ms real-time monitor.
IPWER	Interrupt at power failure.
IAERR	Interrupt when no READY signal is generated on an external board within 16T after the CPU has accessed to the board. (Refer to the TIME OUT block.)
I-TRIG*	Automatic punch ON/OFF and sound memory auto trigger interrupts from the TRC-1 board (synchronized with sectors).
IKCSR	Transmit request interrupt from the KC-17 board.
IKCRR	Receive request interrupt from the KC-1 7 board.
ICK	Error occurrence interrupt from the CK-31 board. (When PLL UNLOCK occurs.)
ITRRQ*	Interrupt generated when receive request is sent from the TRC-1 board via the DUAL PORT RAM.
ITCMP*	Interrupt generated after the TRC-1 board read the data sent to the board via the DUAL PORT RAM.
IR3RV	Received data read enable interrupt of REMOTE3.
IR3SD	End-of-transmission interrupt of REMOTE3.
IESD	End-of-transmission and received data read enable interrupt of REMOTE2.
SIGFO*/E	Time code EVEN FIELD timing interrupt to ensure the transmission timing of REMOTE2 (from the TC-50 board)
IRXRDY	Received data read enable interrupt of SERIAL CONTROLLER (CXQ71051)
IRXRDY	End-of-transmission interrupt of SERIAL CONTROLLER (CXQ71051)

SERIAL CHECK BIT GEN

Generates the check bits (2 bits) to be added to the serial data to be fed out from the REC, ARP PARA/SERI GEN block.

By reading these check bits at the receiving side, whether the transmitted data is normal or not can be checked.

REC, ARP PARA/SERI GEN

Converts parallel control data sent from the CPU into serial data synchronized with the WORD SYNC, and feeds out it to the ARP-2, REC-5, RIO-1 and TC-50 boards.

To the CTL REC ON and CTL REC* signals in this serial data, it applies an AND (logical multiply) operation with the CTL REC ON signal of the CPU and the CTL RRQ* signal from the CTL-2 board, and outputs the data.

DET, DIO, AD, POWER BORD CONTROLLER

Controls the delay switching on the DET-6 board, INPUT SELECT switching on the DIO-5 board, emphasis switching on the AD-36 board and the rising signal of power sources other than + 5V.

PARALLEL I/O

An 8-bit parallel interface using CXQ71055P.

Used for the indication data transmission and KEY change data receiving to/from the KC-17 board in mode 1.

Port 0 is set to to input and port 1 is set to to output. Port 2 is used for handshaking.

SERIAL CONTROLLER

A spare serial interface. (Not used)

MC/DMA BUS CONTROLLER

Performs CPU/DMA bus switching, permitting the CPU and the DMA to operate in parallel.

DMA

A DMA controller designed for CMOS 16-bit CPU. Used for transmitting and receiving by REMOTE3 and transmitting by REMOTE2.

MEMORY I/O DEC

Generates chip select signals for the memory and ID in the MC/DMA BUS by decoding the addresses in the MC/DMA BUS.

RAM

A 2048 x 8 bits CMOS static RAM is used.

Used for transmitting and receiving by REMOTE3 and transmitting by REMOTE2.

ATN SIGNAL GEN

Generates ATN signals and send them to the REMOTE3 INTERFACE block.

CRC CHECK & GEN

Performs CRC in transmitting/receiving by REMOTE3.

REMOTE3 TRANS REQ

Generates REMOTE3 transmit request signals and sends them to the REMOTE3 TRANS CONTROLLER block.

REMOTE3 TRANS CONTROLLER

Synchronizes the transmit request signal from the REMOTE3 TRANS REQ block with the sector clock and the direction signal, and feeds out transmit request signals to the DMA.

REMOTE3 RCV CONTROLLER

Inform the DMA the receive request from REMOTE3.

REMOTE2 CONTROLLER

Controls transmission by REMOTE2.

It uses the DMA for transmitting and an interrupt for receiving.

(Not used)

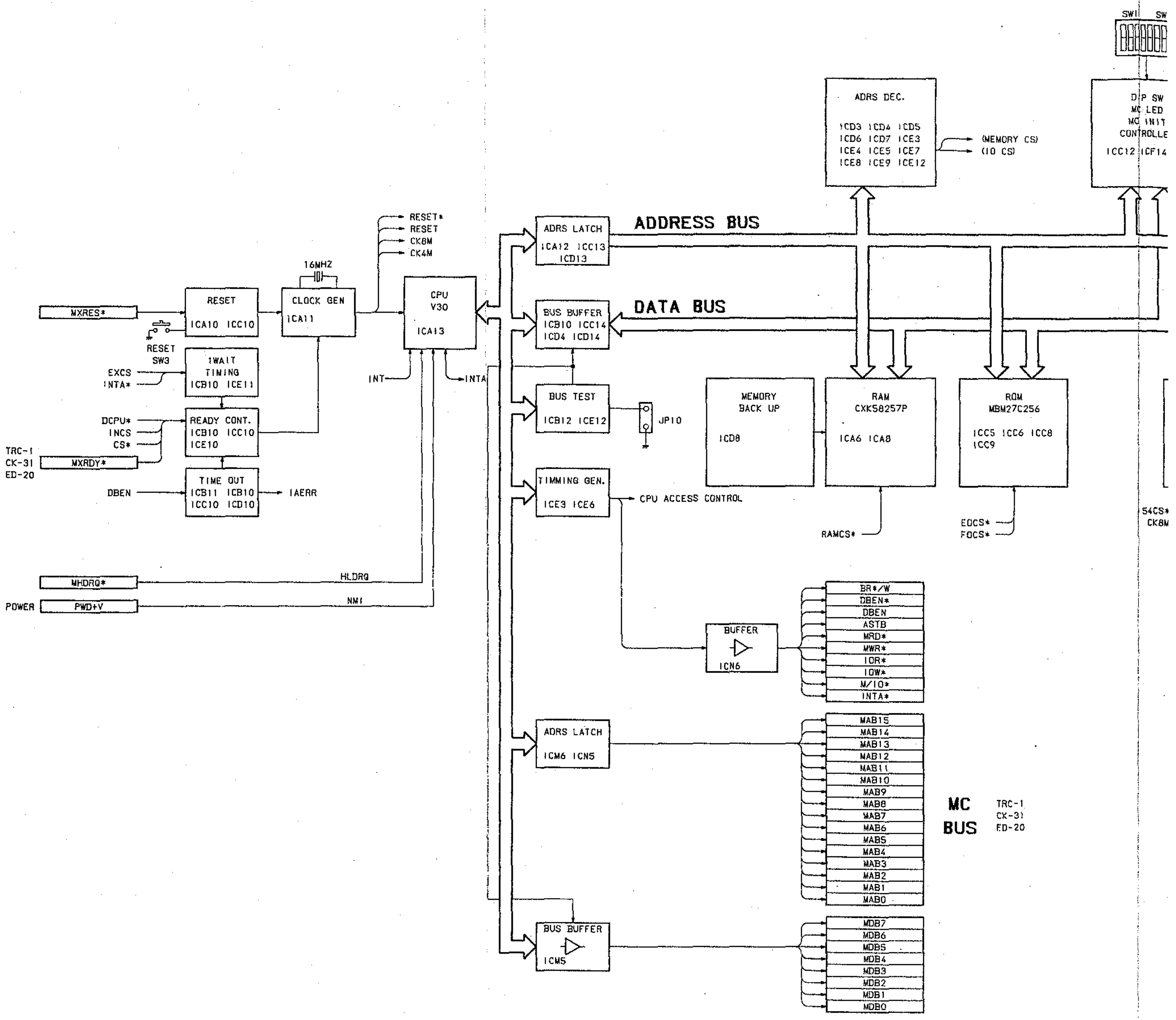
REMOTE2 TRANS END GEN

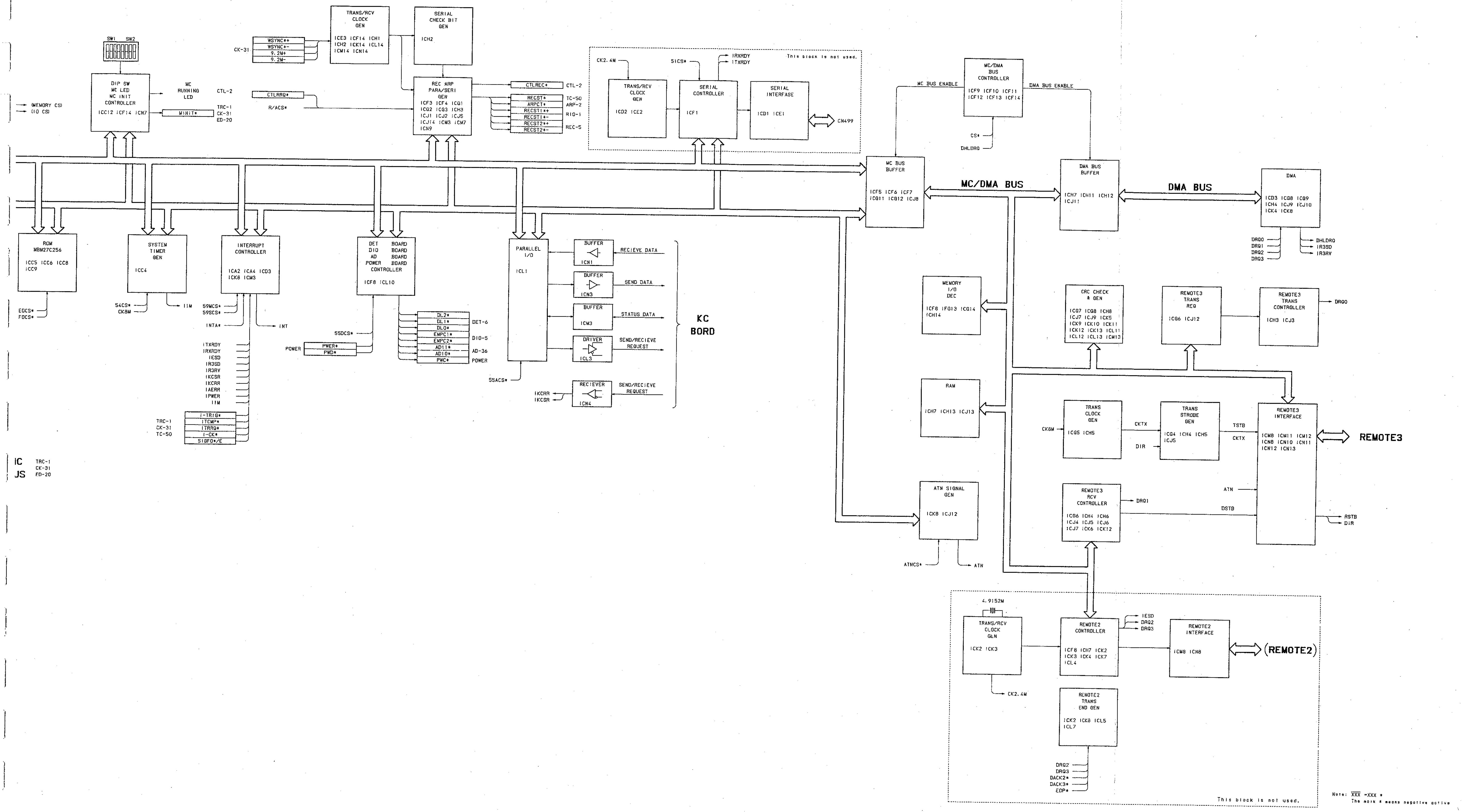
Informs the REMOTE2 CONTROLLER that the DMA has completed REMOTE2 transmission.

TRANS/RCV CLOCK GEN

An oscillator using a crystal vibration element of 4.9152 MHz.

Generates 2.4 MHz with frequency dividing.


MXRES*
RESET
ICA10 ICC10
RESET
SW3
16MHZ
CLOCK GEN
ICA11
RESET*
RESET
CK8M
CK4M
CPU
V30
ICA13
EXCS
INTA*
WAIT
TIMING
ICB10 ICE11
DCPU*
INCS
CS*
TRC-1
CK-31
ED-20
MXRDY*
READY CONT.
ICB10 ICC10
ICE10
DBEN
TIME OUT
ICB11 ICB10
ICC10 ICD10
IAERR
INT
INTA
MHDRQ*
HLDRQ
POWER
PWD+V
NMI
ADRS LATCH
ICA12 ICC13
ICD13
ADDRESS BUS
BUS BUFFER
ICB10 ICC14
ICD4 ICD14
DATA BUS
BUS TEST
ICB12 ICE12
JP10
TIMMING GEN.
ICE3 ICE6
CPU ACCESS CONTROL
ADRS DEC.
ICD3 ICD4 ICD5
ICD6 ICD7 ICE3
ICE4 ICE5 ICE7
ICE8 ICE9 ICE12
(MEMORY CS)
(IO CS)
SW1
SW
DIP SW
MC LED
MC INIT
CONTROLLE
ICC12 ICF14
MEMORY
BACK UP
ICD8
RAM
CXK58257P
ICA6 ICA8
RAMCS*
ROM
MBM27C256
ICC5 ICC6 ICC8
ICC9
EDCS*
FDCS*
54CS*
CK8M
BUFFER
ICN6
BR*/W
DBEN*
DBEN
ASTB
MRD*
MWR*
IOR*
IOW*
M/IO*
INTA*
ADRS LATCH
ICM6 ICN5
MAB15
MAB14
MAB13
MAB12
MAB11
MAB10
MAB9
MAB8
MAB7
MAB6
MAB5
MAB4
MAB3
MAB2
MAB1
MAB0
MC
BUS
TRC-1
CK-31
ED-20
BUS BUFFER
ICM5
MDB7
MDB6
MDB5
MDB4
MDB3
MDB2
MDB1
MDB0


SW1 SW2
DIP SW
MC LED
MC INIT
CONTROLLER
ICC12 ICF14 ICN7
(MEMORY CS)
(IO CS)
MC RUNNING LED
CTL-2
TRC-1
CK-31
ED-20
MINIT*
CK-31
WSYNC*+
WSYNC*-
9.2M+
9.2M-
TRANS/RCV CLOCK GEN
ICE3 ICF14 ICH1
ICH2 ICK14 ICL14
ICM14 ICN14
SERIAL CHECK BIT GEN
ICH2
CTLRRQ*
R/ACS*
REC ARP PARA/SERI GEN
ICF3 ICF4 ICQ1
ICG2 ICG3 ICH3
ICJ1 ICJ2 ICJ5
ICJ14 ICM3 ICM7
ICN9
CTLREC*
CTL-2
RECST*
ARPCT*
RECST1*+
RECST1*-
RECST2*+
RECST2*-
TC-50
ARP-2
RIO-1
REC-5
CK2.4M
51CS*
IRXRDY
ITXRDY
This block is not used.
TRANS/RCV CLOCK GEN
ICD2 ICE2
SERIAL CONTROLLER
ICF1
SERIAL INTERFASE
ICD1 ICE1
CN499
MC/DMA BUS CONTROLLER
ICF9 ICF10 ICF11
ICF12 ICF13 ICF14
MC BUS ENABLE
DMA BUS ENABLE
CS*
DHLDRQ
MC BUS BUFFER
ICF5 ICF6 ICF7
ICG11 ICG12 ICJ8
MC/DMA BUS
DMA BUS BUFFER
ICH7 ICH11 ICH12
ICJ11
DMA BUS
DMA
ICD3 ICG8 ICG9
ICH4 ICJ9 ICJ10
ICK4 ICK8
DRQ0
DRQ1
DRQ2
DRQ3
DHLDRQ
IR3SD
IR3RV
ROM
MBM27C256
ICC5 ICC6 ICC8
ICC9
EOCS*
FOCS*
SYSTEM TIMER GEN
ICC4
54CS*
CK8M
IIM
INTERRUPT CONTROLLER
ICA2 ICA4 ICD3
ICK8 ICM3
59MCS*
59SCS*
INTA*
INT
ITXRDY
IRXRDY
IESD
IR3SD
IR3RV
IKCSR
IKCRR
IAERR
IPWER
IIM
I-TRIG*
ITCMP*
ITRRQ*
I-CK*
SIGFO*/E
TRC-1
CK-31
TC-50
DET BOARD
DIO BOARD
AD BOARD
POWER BOARD
CONTROLLER
ICF8 ICL10
55DCS*
POWER
PWER*
PWD*
DL2*
DL1*
DLO*
EMPC1*
EMPC2*
AD11*
AD10*
PWC*
DET-6
DIO-5
AD-36
POWER
PARALLEL I/O
ICL1
55ACS*
BUFFER
ICN1
RECIEVE DATA
BUFFER
ICN3
SEND DATA
BUFFER
ICM3
STATUS DATA
DRIVER
ICL3
SEND/RECIEVE REQUEST
RECIEVER
ICN4
SEND/RECIEVE REQUEST
IKCRR
IKCSR
KC BORD
IC
JS
TRC-1
CK-31
ED-20
MEMORY I/O DEC
ICF8 IFG13 ICG14
ICH14
RAM
ICH7 ICH13 ICJ13
ATN SIGNAL GEN
ICK8 ICJ12
ATNCS*
ATN
CRC CHECK & GEN
ICG7 ICG8 ICH8
ICJ7 ICJ9 ICK5
ICK9 ICK10 ICK11
ICK12 ICK13 ICL11
ICL12 ICL13 ICM13
REMOTE3 TRANS REQ
ICG6 ICJ12
REMOTE3 TRANS CONTROLLER
ICH3 ICJ3
DRQ0
TRANS CLOCK GEN
ICG5 ICH5
CK8M
CKTX
DIR
TRANS STROBE GEN
ICG4 ICH4 ICH5
ICJ5
TSTB
CKTX
REMOTE3 INTERFACE
ICM8 ICM11 ICM12
ICN8 ICN10 ICN11
ICN12 ICN13
REMOTE3
REMOTE3 RCV CONTROLLER
ICG6 ICH4 ICH6
ICJ4 ICJ5 ICJ6
ICJ7 ICK6 ICK12
DRQ1
ATN
DSTB
RSTB
DIR
4.9152M
TRANS/RCV CLOCK GEN
ICK2 ICK3
CK2.4M
REMOTE2 CONTROLLER
ICF8 ICH7 ICK2
ICK3 ICK4 ICK7
ICL4
IESD
DRQ2
DRQ3
REMOTE2 INTERFACE
ICM8 ICN8
(REMOTE2)
REMOTE2 TRANS END GEN
ICK2 ICK8 ICL5
ICL7
DRQ2
DRQ3
DACK2*
DACK3*
EOP*
This block is not used.

Note: XXX =XXX *
The mark * means negative active

MC-33/33A BOARD BLOCK DIAGRAM
PCM-3348

RLD-1 BOARD

The RLD-1 board is a reel motor driver, and is composed of 5 blocks.

1. TAKE UP MOTOR DRIVER block
2. SUPPLY MOTOR DRIVER block
3. PLUNGER DRIVER block
4. GEARED MOTOR DRIVER block
5. PULSE MOTOR DRIVER block

1. TAKE UP MOTOR DRIVER block

This block drives the TAKE UP motor together with the PWT-1 board.

Relay control circuit

Controls the relay which decides the current direction to the reel motor by TAKE UP REEL SERVO CONTROL VOLTAGE (TSC) sent from the RS-24 board.

Direction control relay

Decides the current direction supplied to the relay motor. This also decides whether the electro-magnetic brake is put on the motor.

Motor driver

Decides the motor current by the TSC together with the PWT-1 board. This controls the motor current so that it will be 1A when TSC is 1.9 V.

VARI power source control circuit

Generates the VARI power control voltage to drive the reel motor by the TSC and the reel FG F/V CONVERTER output voltage.

F/V CONVERTER

The waveform of the output signal of FG attached to the reel motor is shaped by the GMT-1 board on the mechanical chassis. The reel FG supplies two signals, mono-phase and two-phase, and they are set so that the phase difference will be 90°. When these two signals are accepted, the frequency is multiplied by four by EXCLUSIVE OR, and the voltage proportional to the frequency is obtained by the mono-multi type F/V CONVERTER.

Delay and advance relations between two signals are reversed by the rotating direction of the capstan roller so that the direction is detected by D.F.F. The polarity of the R/V CONVERTER output voltage is reversed by the rotating direction.

SHUT OFF control circuit

This is composed of the relay control circuit and the SHUT OFF relay. This puts on the electro-magnetic to the motor by the SHUT OFF signal sent from the RS-24 board, and controls the motor current so that it will constant (2A).

2. SUPPLY MOTOR DRIVER block

This block drives the SUPPLY motor together with the PWT-1 board. The operation is the same as that of block 1, and therefore further explanation is omitted.

3. PLUNGER DRIVER block

Controls the TAKE UP and SUPPLY reel brakes separately.

4. GEARED MOTOR DRIVER block

This block drives the geared motor for tape loading. The TAKE UP and SUPPLY motors operate separately.

The operation of the TAKE UP and SUPPLY motors is the same so only one of them is explained.

Control logic circuit

Controls ON/OFF of the motor and the rotating direction.

Driver circuit

Drives the motor according to the output of the control logic.

ELECTRO MOTIVE FORCE DETECT circuit

Controls the drive voltage by detecting the back electromotive force so that the rotating speed of the motor becomes constant.

5. PULSE MOTOR DRIVER block

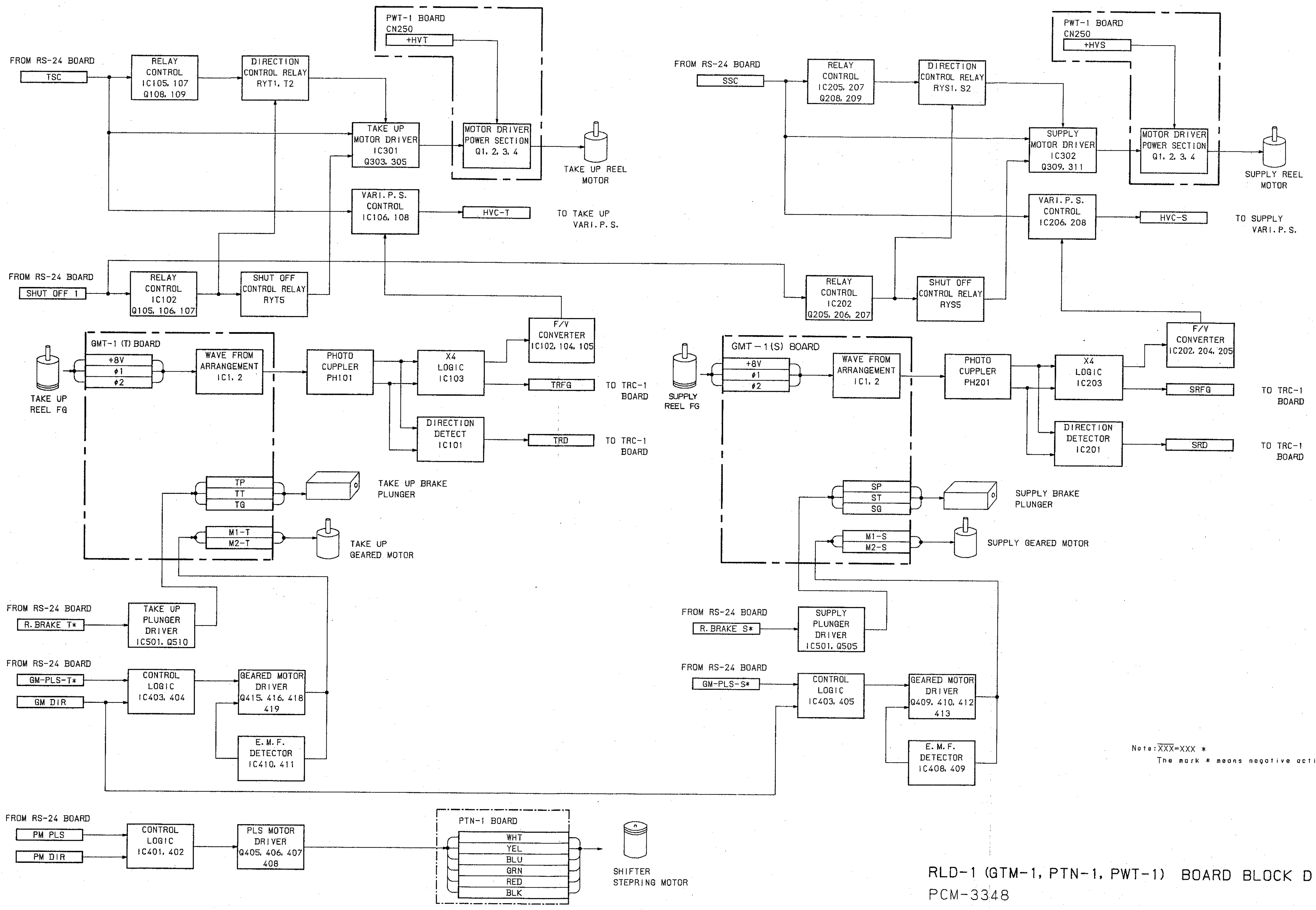
Drives the stepping motor which activates the tape shifter.

Control logic circuit

Generates the signal to drive the stepping motor using the motor drive pulse (PM PLS) sent from the TRC-1 board and the motor rotating direction control signal (PM DIR) sent from the RS-24 board.

Driver circuit

Magnetizes the coil of the stepping motor with the signal generated by the control logic.


PWT-1 BOARD
CN250
+HVT
FROM RS-24 BOARD
TSC
RELAY CONTROL IC105, 107 Q108, 109
DIRECTION CONTROL RELAY RYT1, T2
TAKE UP MOTOR DRIVER IC301 Q303, 305
MOTOR DRIVER POWER SECTION Q1, 2, 3, 4
TAKE UP REEL MOTOR
VARI. P. S. CONTROL IC106, 108
HVC-T
TO TAKE UP VARI. P. S.
FROM RS-24 BOARD
SHUT OFF 1
RELAY CONTROL IC102 Q105, 106, 107
SHUT OFF CONTROL RELAY RYT5
F/V CONVERTER IC102, 104, 105
GMT-1 (T) BOARD
+8V
ϕ1
ϕ2
TAKE UP REEL FG
WAVE FROM ARRANGEMENT IC1, 2
PHOTO CUPPLER PH101
X4 LOGIC IC103
TRFG
TO TRC-1 BOARD
DIRECTION DETECT IC101
TRD
TO TRC-1 BOARD
TP
TT
TG
TAKE UP BRAKE PLUNGER
M1-T
M2-T
TAKE UP GEARED MOTOR
FROM RS-24 BOARD
R. BRAKE T*
TAKE UP PLUNGER DRIVER IC501, Q510
FROM RS-24 BOARD
GM-PLS-T*
GM DIR
CONTROL LOGIC IC403, 404
GEARED MOTOR DRIVER Q415, 416, 418 419
E. M. F. DETECTOR IC410, 411
FROM RS-24 BOARD
PM PLS
PM DIR
CONTROL LOGIC IC401, 402
PLS MOTOR DRIVER Q405, 406, 407 408
PTN-1 BOARD
WHT
YEL
BLU
GRN
RED
BLK
SHIFTER STEPRING MOTOR
PWT-1 BOARD
CN250
+HVS
FROM RS-24 BOARD
SSC
RELAY CONTROL IC205, 207 Q208, 209
DIRECTION CONTROL RELAY RYS1, S2
SUPPLY MOTOR DRIVER IC302 Q309, 311
MOTOR DRIVER POWER SECTION Q1, 2, 3, 4
SUPPLY REEL MOTOR
VARI. P. S. CONTROL IC206, 208
HVC-S
TO SUPPLY VARI. P. S.
RELAY CONTROL IC202 Q205, 206, 207
SHUT OFF CONTROL RELAY RYS5
F/V CONVERTER IC202, 204, 205
GMT-1 (S) BOARD
+8V
ϕ1
ϕ2
SUPPLY REEL FG
WAVE FROM ARRANGEMENT IC1, 2
PHOTO CUPPLER PH201
X4 LOGIC IC203
SRFG
TO TRC-1 BOARD
DIRECTION DETECTOR IC201
SRD
TO TRC-1 BOARD
SP
ST
SG
SUPPLY BRAKE PLUNGER
M1-S
M2-S
SUPPLY GEARED MOTOR
FROM RS-24 BOARD
R. BRAKE S*
SUPPLY PLUNGER DRIVER IC501, Q505
FROM RS-24 BOARD
GM-PLS-S*
CONTROL LOGIC IC403, 405
GEARED MOTOR DRIVER Q409, 410, 412 413
E. M. F. DETECTOR IC408, 409

Note: $\overline{XXX}$=XXX *
The mark * means negative active.

RLD-1 (GTM-1, PTN-1, PWT-1) BOARD BLOCK DIAGR

PCM-3348

RS-24 BOARD

[Outline]

The RS-24 board is composed of 7 blocks. The main function of this board is to control the reel servo. This detects the tension value by the TAKE UP and SUPPLY tension regulators, and the tape speed by CRFG attached to the capstan roller, and generates the voltage to control the TAKE UP and SUPPLY reel motors (TSC, SSC).

1. INTERFACE block
2. TAKE UP tension servo block
3. Speed servo block
4. SUPPLY tension servo block
5. Shuttle block
6. EXTERNAL CONTROL block
7. POWER SUPPLY block

[Block description]

1. INTERFACE BLOCK

This block is connected to the TRC-1 board through the ADDRESS BUS and DATA BUS, and generates the control signal for the other blocks on this board and the RLD-1 board.

ADDRESS DECODER
Decides the parallel I/O port mentioned later according to the contents of the ADDRESS BUS.

ADDRESS SELECTOR
Decides the channel of the A/D CONVERTER and the address of the RAM mentioned later according to the contents of theADDRESS BUS.

A/D CONTROLLER
Using the sector sync, it generates the latch of the data of the A/D CONVERTER, the signal to write the data in the RAM and the timing signal to read the data by the CPU on the TRC-1 board.

RAM
Temporarily stacks the data of the A/D CONVERTER.

A/D CONVERTER
Performs A/D conversion of the data on the shuttle dial position, T reel motor control voltage, S reel motor control voltage, EXTERNAL PHASE input voltage, CRFG F/G output voltage (CRFG A/D), T reel motor FG F/V output voltage (TRFG A/D), and S reel motor FG F/V output voltage (SRFG A/D).

PARALLEL INTERFACE
Generates the signal to control the other blocks on this board and the RLD-1 board according to the contents of the DATA BUS. This also detects the status of the other blocks and the RLD-1 board.

D/A CONVERTER
According to the contents of the DATA BUS, this generates six signals; target tape speed (TGV), target tape speed in EXTERNAL PHASE mode (EXT PHV), radius of tape wind on TAKE UP side (T-RADIUS), radius of tape wind on SUPPLY side (S-RADIUS), initial torque on TAKE UP side (INIT-TRQ-T) and initial torque on SUPPLY side (INIT-TRQ-S).

INT SIGNAL FORMING
Generates the interruption signal to theCPU on the TRC-1 board according to the position of the stepping motor for the tape shifter.

2. TAKE-UP TENSION SERVO BLOCK

This block detects the tension value by the TAKE UP tension regulator, and generates the TAKE UP reel motor control voltage (TSC) to obtain a constant tension value.

TENSION REF SELECT
Selects the tension reference of TH, TM, and TL.
A switching signal is obtained from the TRC-1 board through the interface block of this board according to the transport mode.

Target tension

TH	:	Approx. 200 g
TM	:	Approx. 180 g
TL	:	Approx. 160 g

DIFFERENCIAL AMP
Output voltage is obtained by the non-contact type potentiometer attached to the TAKE UP tension regulator according to the tension value. By comparing the voltage with the tension reference voltage, the TAKE UP tension error voltage (T TENSION ERROR) is output.

PHASE COMPENSATION
Phase compensation is performed by advancing the phase to avoid oscillation because the tension servo is the second-order lag system.

ANALOG ADDER
TAKE UP reel motor control voltage (TSC) is obtained by adding the output of the speed servo block mentioned later and the T TENSION ERROR mentioned before.

TAKE UP CONTROL
Controls the reel servo gain and ON/OFF of the reel servo by the control signal supplied from the CPU on the TRC-1 board through the interface block of this board.

TENSION GAIN CONTROL
Decides the curve to control the reel servo gain in TAKE UP CONTROL.
The same curve is used on the TAKE UP and SUPPLY sides.

INIT TORQUE SELECT
Selects the TAKE UP INIT TORQUE (INIT-TRQ-T) or the TAKE UP reel motor control voltage (TSC).
TAKE UP INIT TORQUE is selected for taking up the tape slack while loading, and for performing loading smoothly when 14 reel is used.

LEVEL CONV. FOR A/D
Conforms the TAKE UP reel motor control voltage to the input level of the A/D CONVERTER.

3. SPEED SERVO BLOCK

This block detects the tape speed by the CRFG, and generates the TAKE UP and SUPPLY reel motor control voltage to match the tape speed to the target tape speed defined by the TRC-1 board.

RECEIVER
CRFG is a magnet ring attached to the capstan roller. It is detected by the thin film magnetic reluctance element.
The signal whose waveform is shaped by the PTN-1 board on the mechanical chassis, is sent to this board through the line driver. This RECEIVER accepts the signal, shapes the waveform, and sent to the next stage.

X2 LOGIC
There are two signals, mono-phase and two-phase, with which CRFG is sent, and the phase difference is set to 90°. The frequency is doubled by EXCLUSIVE OR of mono-phase and two-phase signals. Delay and advance relations between two signals are reversed by rotating direction of the capstan roller so that the direction is also detected by D.F.F.

F/V CONVERTER
The signal whose frequency is doubled by X2 LOGIC is changed into the voltage proportional to the frequency by the mono-multi type F/V CONVERTER.
The polarity of the output voltage is reversed by rotating direction of the capstan roller.

DIFFERENTIAL AMP
Speed error voltage is obtained by comparing the voltage proportional to the real tape speed obtained by the F/G CONVERTER with the target tape speed defined by the TRC-1 board through the interface block of this board.

GAIN SELECTOR
Switches the speed servo gain and ON/OFF of the speed servo according to the transport mode. The switching signal is given by the TRC-1 board through the interface block of this board.

4. SUPPLY TENSION SERVO BLOCK

This block detects the tension value by the SUPPLY tension regulator, and generates the SUPPLY reel motor control voltage (SSC) to make the detected value constant.
The contents are the same as those of "2. TAKE-UP TENSION SERVO BLOCK", and therefore further explanation is omitted.

5. SHUTTLE BLOCK

Detects the position of the shuttle dial, generates the voltage according to the detected position, and sends it to the A/D CONVERTER in the interface block.
The TRC-1 board controls the target tape speed (TGV) using this data.

6. EXTERNAL CONTROL BLOCK

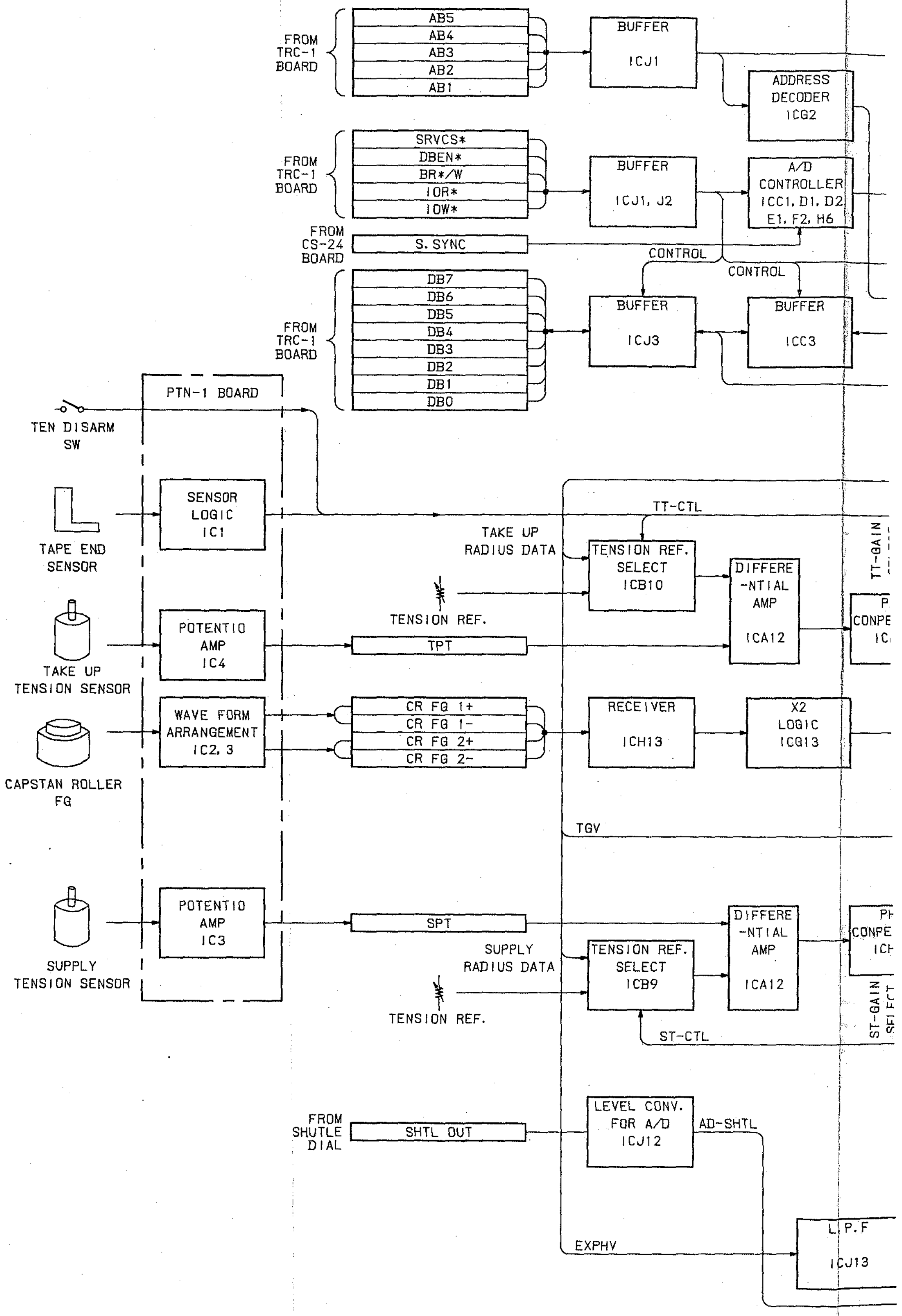
Accepts EXTERNAL SPEED and EXTERNAL PHASE signals, and controls the servo so that an operation according to the signal is performed.

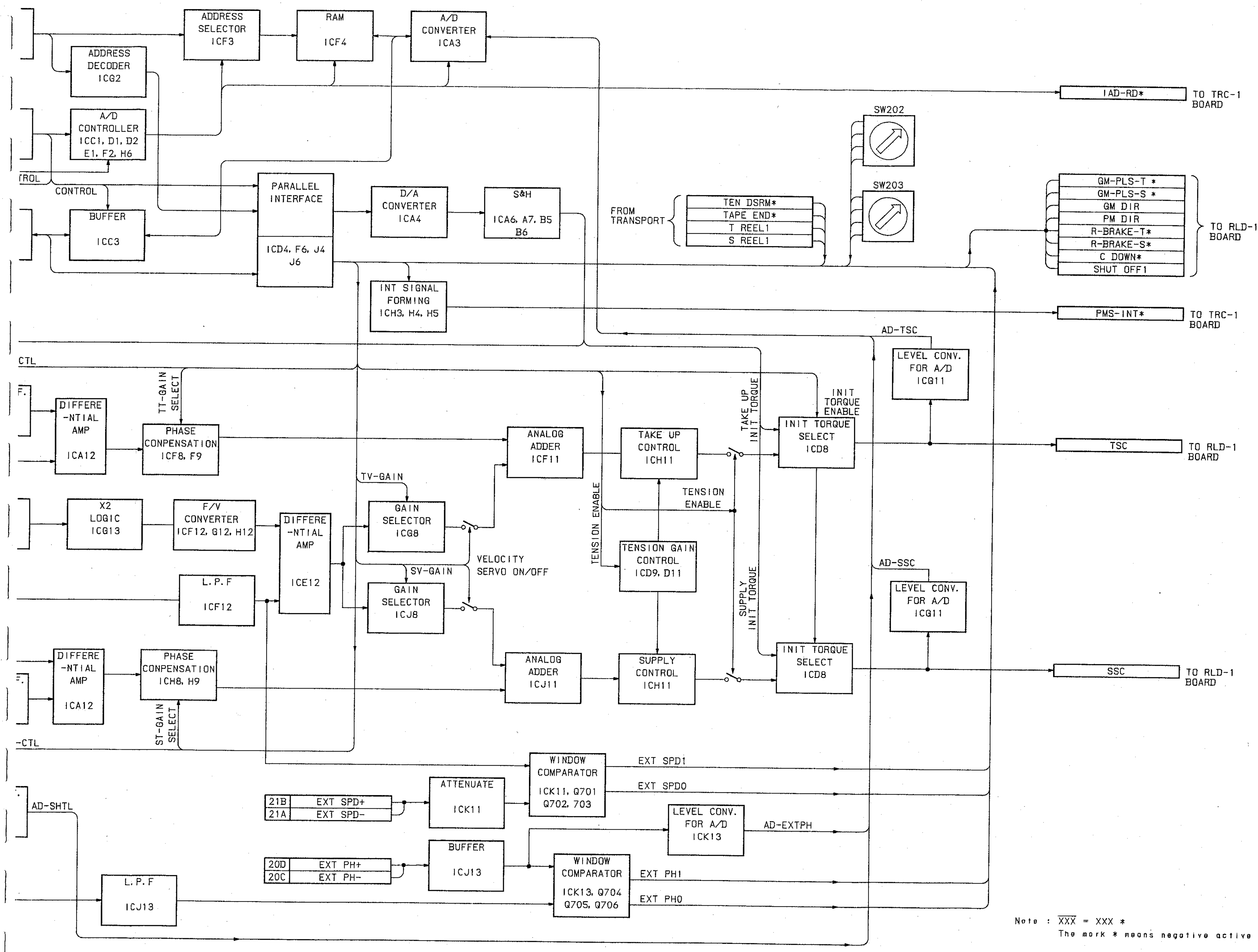
EXTERNAL SPEED
Conforms the EXTERNAL SPEED input voltage and the target tape speed (TGV) voltage by the ATTENUATOR, compares these two voltages by the WINDOW COMPARATOR, and controls the TGV by the software of the TRC-1 board so that they will be the same.

EXTERNAL PHASE
The level of the EXTERNAL PHASE input received by the BUFFER is converted so that it can be input to the A/D CONVERTER of the interface block.
Using this data, the TRC-1 board performs VARI SPEED operation. EXTPHV is controlled by the software of the TRC-1 board so that the EXTPHV signal generated by the TRC-1 board will be the same as the EXTERNAL PHASE input signal by comparing them by the WINDOW COMPARATOR. EXTPHV is obtained by multiplying TGV by a constant so that TGV will change as the EXTPHV changes and the tape speed is also changed.

7. POWER SUPPLY BLOCK

This block generates the power sources for this board based on that supplied from the MAIN power source.


FROM TRC-1 BOARD
AB5
AB4
AB3
AB2
AB1
BUFFER
ICJ1
ADDRESS DECODER ICG2
FROM TRC-1 BOARD
SRVCS*
DBEN*
BR*/W
IOR*
IOW*
BUFFER
ICJ1, J2
A/D CONTROLLER ICC1, D1, D2 E1, F2, H6
FROM CS-24 BOARD
S.SYNC
CONTROL
CONTROL
FROM TRC-1 BOARD
DB7
DB6
DB5
DB4
DB3
DB2
DB1
DB0
BUFFER
ICJ3
BUFFER
ICC3
PTN-1 BOARD
TEN DISARM SW
TAPE END SENSOR
SENSOR LOGIC IC1
TT-CTL
TAKE UP RADIUS DATA
TENSION REF. SELECT ICB10
DIFFERE -NTIAL AMP ICA12
TT-GAIN
P
CONPE
IC
TENSION REF.
TAKE UP TENSION SENSOR
POTENTIO AMP IC4
TPT
CAPSTAN ROLLER FG
WAVE FORM ARRANGEMENT IC2, 3
CR FG 1+
CR FG 1-
CR FG 2+
CR FG 2-
RECEIVER
ICH13
X2 LOGIC ICG13
TGV
SUPPLY TENSION SENSOR
POTENTIO AMP IC3
SPT
SUPPLY RADIUS DATA
TENSION REF. SELECT ICB9
DIFFERE -NTIAL AMP ICA12
PH
CONPE
ICH
ST-GAIN
TENSION REF.
ST-CTL
FROM SHUTLE DIAL
SHTL OUT
LEVEL CONV. FOR A/D ICJ12
AD-SHTL
EXPHV
L.P.F
ICJ13


ADDRESS SELECTOR ICF3
RAM ICF4
A/D CONVERTER ICA3
ADDRESS DECODER ICG2
A/D CONTROLLER ICC1, D1, D2 E1, F2, H6
IAD-RD*
TO TRC-1 BOARD
SW202
SW203
TROL
CONTROL
PARALLEL INTERFACE ICD4, F6, J4 J6
BUFFER ICC3
D/A CONVERTER ICA4
S&H ICA6, A7, B5 B6
FROM TRANSPORT
TEN DSRM*
TAPE END*
T REEL1
S REEL1
GM-PLS-T *
GM-PLS-S *
GM DIR
PM DIR
R-BRAKE-T*
R-BRAKE-S*
C DOWN*
SHUT OFF1
TO RLD-1 BOARD
INT SIGNAL FORMING ICH3, H4, H5
PMS-INT*
TO TRC-1 BOARD
AD-TSC
LEVEL CONV. FOR A/D ICG11
CTL
TT-GAIN SELECT
INIT TORQUE ENABLE
TAKE UP INIT TORQUE
DIFFERE -NTIAL AMP ICA12
PHASE CONPENSATION ICF8, F9
ANALOG ADDER ICF11
TAKE UP CONTROL ICH11
INIT TORQUE SELECT ICD8
TSC
TO RLD-1 BOARD
TV-GAIN
TENSION ENABLE
TENSION ENABLE
X2 LOGIC ICG13
F/V CONVERTER ICF12, G12, H12
DIFFERE -NTIAL AMP ICE12
GAIN SELECTOR ICG8
VELOCITY SERVO ON/OFF
TENSION GAIN CONTROL ICD9, D11
SV-GAIN
AD-SSC
LEVEL CONV. FOR A/D ICG11
L.P.F ICF12
GAIN SELECTOR ICJ8
SUPPLY INIT TORQUE
DIFFERE -NTIAL AMP ICA12
PHASE CONPENSATION ICH8, H9
ANALOG ADDER ICJ11
SUPPLY CONTROL ICH11
INIT TORQUE SELECT ICD8
SSC
TO RLD-1 BOARD
ST-GAIN SELECT
-CTL
WINDOW COMPARATOR ICK11, Q701 Q702, 703
EXT SPD1
EXT SPD0
ATTENUATE ICK11
21B EXT SPD+
21A EXT SPD-
AD-SHTL
LEVEL CONV. FOR A/D ICK13
AD-EXTPH
BUFFER ICJ13
20D EXT PH+
20C EXT PH-
WINDOW COMPARATOR ICK13, Q704 Q705, Q706
EXT PH1
EXT PH0
L.P.F ICJ13

Note : $\overline{\text{XXX}}$ = XXX *
The mark * means negative active

RS-24 (PTN-1) BOARD BLOCK DIAGRAM
PCM-3348

SPU-1 BOARD

[Outline]

One SPU-1 board processes 12 channels so that a total of 48 channels can be processed by 4 boards. The board is composed of the encode block which generates the interleave parity from the REC data and executes HPM-1 modulation of the REC data sent from the ED (EDIT) board according to the DASH format; the digital PLL block which extracts the bit block from the signal reproduced by the PB head; and the decoder block which executes de-interleaving, correction of the data by a parity check, splicing detection, etc., after HDM-1 demodulation, sync signal separation, and time base correction (TBC).

[Block description]

1. Encode block

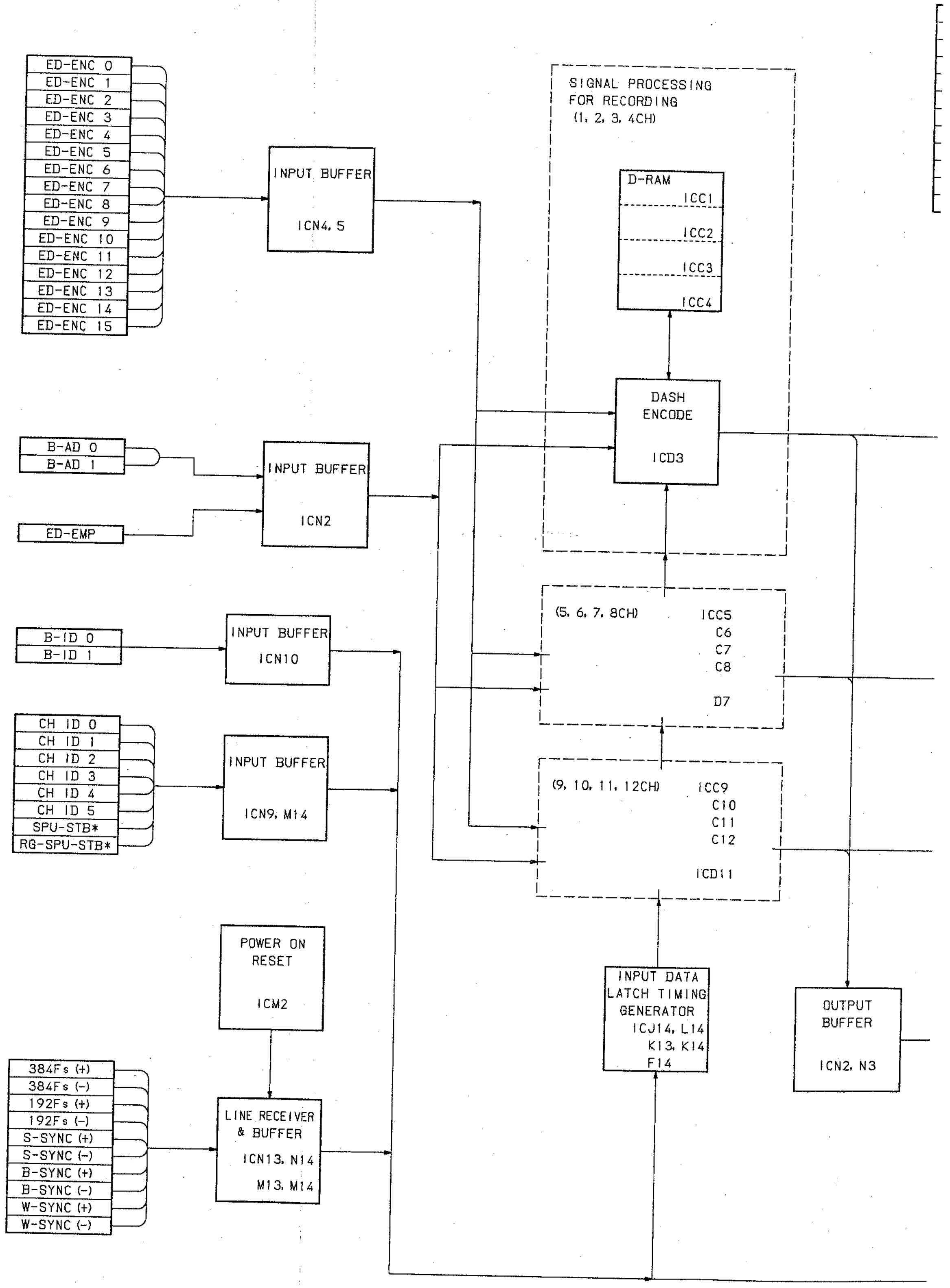
A 16-bit audio signal sent from the ED (EDIT) board is divided into 48 channels by time-sharing in word units. Data of necessary channels among these 12 time-shared channels is latched for every 4 channels on each ENCODER LSI (DASH-001) chip in the timing of the CH-ID (Channel ID) and B-ID (Board-ID). The ENCODER LSI generates the parity, and performs interleaving according to the DASH format from the input data, adds the EMP flag, then executes HDM-1 modulation to make the REC data for 12 tracks.

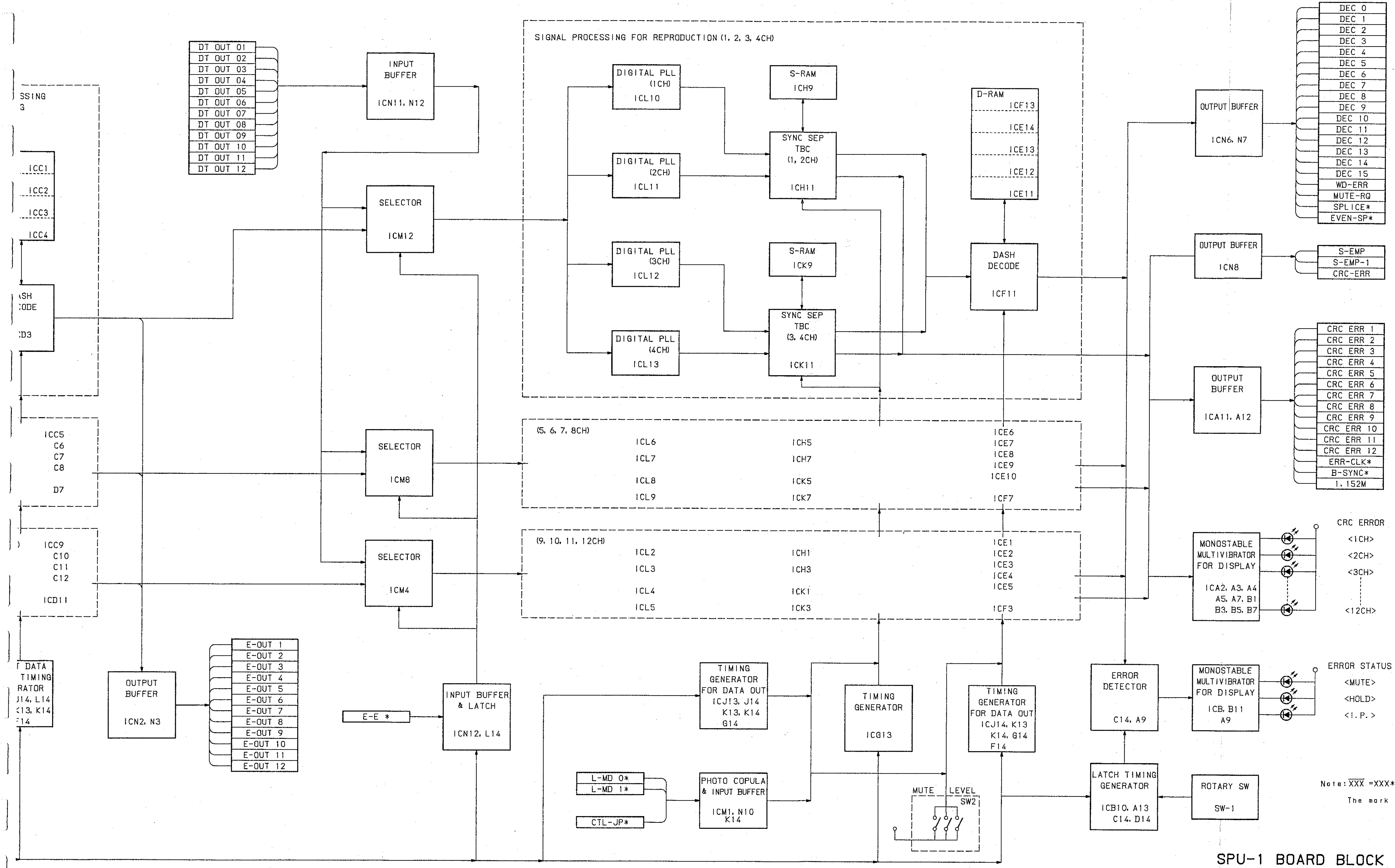
2. Decode block

The reproduced signal sent from the DET (DETECTOR) board is input to the Digital PLL (DASH-013) from which the serial data and bit clock are obtained. They are sent to the Sync SEP/TBC LSI (DASH-003A).
The Sync SEP/TBC LSI detects the Block Sync, and referring to the detected sync signal, HDM-1 demodulation and CRC check are performed. Then the time base correction is performed using an external S-RAM as buffer, and the 16-bit parallel data and the CRC error flag are sent to the DECODER LSI (DASH-002).
The emphasis flag in the data is also detected, and is sent to the time sharing bus to the ED (EDIT) board.
The DECODER LSI (DASH-002) stores the 16-bit input data and CRC error flag in D-RAM, and performs de-interleaving using the D-RAM address. At the same time, parity check and error correction are executed. When the data cannot be corrected, Word Error or Mute Request Bit is set to active, and it is sent to the time-sharing bus to the ED (EDIT) board. DECODER LSI outputs the timing signal (SPLICE, EVEN-SP) required for X'Fada processing of splicing on the ED (EDIT) board when the CTL-jump signal sent from the CTL board is input or when the splicing is detected in a parity check.
All time-sharing signals sent to the ED (EDIT) board such as the 16-bit output signal of DECODER LSI, emphasis flag, Word Error, etc., are controlled by the CH-ID (Channel-ID) and B-ID (Board-ID).

3. Error display block

The CRC error data for all 12 channels which is sent from the Sync SEP/TBC LSI are displayed on the board panel, and also the status of I.P., Hold and Mute of the channel which is selected on the board panel according to the Word Error sent from DECODER LSI, are detected and displayed on the board panel.


ED-ENC 0
ED-ENC 1
ED-ENC 2
ED-ENC 3
ED-ENC 4
ED-ENC 5
ED-ENC 6
ED-ENC 7
ED-ENC 8
ED-ENC 9
ED-ENC 10
ED-ENC 11
ED-ENC 12
ED-ENC 13
ED-ENC 14
ED-ENC 15
INPUT BUFFER
ICN4, 5
SIGNAL PROCESSING FOR RECORDING
(1, 2, 3, 4CH)
D-RAM
ICC1
ICC2
ICC3
ICC4
DASH ENCODE
ICD3
B-AD 0
B-AD 1
ED-EMP
INPUT BUFFER
ICN2
B-ID 0
B-ID 1
INPUT BUFFER
ICN10
(5, 6, 7, 8CH)
ICC5
C6
C7
C8
D7
CH ID 0
CH ID 1
CH ID 2
CH ID 3
CH ID 4
CH ID 5
SPU-STB*
RG-SPU-STB*
INPUT BUFFER
ICN9, M14
(9, 10, 11, 12CH)
ICC9
C10
C11
C12
ICD11
POWER ON RESET
ICM2
INPUT DATA LATCH TIMING GENERATOR
ICJ14, L14
K13, K14
F14
OUTPUT BUFFER
ICN2, N3
384Fs (+)
384Fs (-)
192Fs (+)
192Fs (-)
S-SYNC (+)
S-SYNC (-)
B-SYNC (+)
B-SYNC (-)
W-SYNC (+)
W-SYNC (-)
LINE RECEIVER & BUFFER
ICN13, N14
M13, M14


SSING
G
ICC1
ICC2
ICC3
ICC4
ASH
CODE
CD3
ICC5
C6
C7
C8
D7
ICC9
C10
C11
C12
ICD11
T DATA
TIMING
RATOR
J14, L14
K13, K14
F14
DT OUT 01
DT OUT 02
DT OUT 03
DT OUT 04
DT OUT 05
DT OUT 06
DT OUT 07
DT OUT 08
DT OUT 09
DT OUT 10
DT OUT 11
DT OUT 12
INPUT BUFFER
ICN11, N12
SELECTOR
ICM12
SELECTOR
ICM8
SELECTOR
ICM4
OUTPUT BUFFER
ICN2, N3
E-OUT 1
E-OUT 2
E-OUT 3
E-OUT 4
E-OUT 5
E-OUT 6
E-OUT 7
E-OUT 8
E-OUT 9
E-OUT 10
E-OUT 11
E-OUT 12
E-E *
INPUT BUFFER & LATCH
ICN12, L14
SIGNAL PROCESSING FOR REPRODUCTION (1, 2, 3, 4CH)
DIGITAL PLL (1CH)
ICL10
DIGITAL PLL (2CH)
ICL11
DIGITAL PLL (3CH)
ICL12
DIGITAL PLL (4CH)
ICL13
S-RAM
ICH9
SYNC SEP TBC (1, 2CH)
ICH11
S-RAM
ICK9
SYNC SEP TBC (3, 4CH)
ICK11
D-RAM
ICF13
ICE14
ICE13
ICE12
ICE11
DASH DECODE
ICF11
(5, 6, 7, 8CH)
ICL6
ICL7
ICL8
ICL9
ICH5
ICH7
ICK5
ICK7
ICE6
ICE7
ICE8
ICE9
ICE10
ICF7
(9, 10, 11, 12CH)
ICL2
ICL3
ICL4
ICL5
ICH1
ICH3
ICK1
ICK3
ICE1
ICE2
ICE3
ICE4
ICE5
ICF3
TIMING GENERATOR FOR DATA OUT
ICJ13, J14
K13, K14
G14
TIMING GENERATOR
ICG13
TIMING GENERATOR FOR DATA OUT
ICJ14, K13
K14, G14
F14
L-MD 0*
L-MD 1*
CTL-JP*
PHOTO COPULA & INPUT BUFFER
ICM1, N10
K14
MUTE
LEVEL
SW2
OUTPUT BUFFER
ICN6, N7
DEC 0
DEC 1
DEC 2
DEC 3
DEC 4
DEC 5
DEC 6
DEC 7
DEC 8
DEC 9
DEC 10
DEC 11
DEC 12
DEC 13
DEC 14
DEC 15
WD-ERR
MUTE-RQ
SPLICE*
EVEN-SP*
OUTPUT BUFFER
ICN8
S-EMP
S-EMP-1
CRC-ERR
OUTPUT BUFFER
ICA11, A12
CRC ERR 1
CRC ERR 2
CRC ERR 3
CRC ERR 4
CRC ERR 5
CRC ERR 6
CRC ERR 7
CRC ERR 8
CRC ERR 9
CRC ERR 10
CRC ERR 11
CRC ERR 12
ERR-CLK*
B-SYNC*
1.152M
MONOSTABLE MULTIVIBRATOR FOR DISPLAY
ICA2, A3, A4
A5, A7, B1
B3, B5, B7
CRC ERROR
<1CH>
<2CH>
<3CH>
<12CH>
ERROR DETECTOR
C14, A9
MONOSTABLE MULTIVIBRATOR FOR DISPLAY
ICB, B11
A9
ERROR STATUS
<MUTE>
<HOLD>
<I. P.>
LATCH TIMING GENERATOR
ICB10, A13
C14, D14
ROTARY SW
SW-1

Note: $\overline{\text{XXX}}$ =XXX*

The mark * means negative active

SPU-1 BOARD BLOCK DIAGRAM
PCM-3348

TC-50 BOARD

[Outline]

The TC-50 board is a time code generator and reader of the SMPTE (DF/NDF), EBU and film format. This board can generate the LTC (LONGITUDINAL TIME CODE), and read the reproduced or external time code. The internal generator can lock with the reproduced and external time code.

[Block description]

1. Time code generator

The time code generator operates referring to the reference clock generated by the SYSTEM CLK, and the frame clock of LTC. Generally, the frame clock is obtained by dividing 1.44 MHz sent from the CK-31 board by the FRAME GENERATOR. It can also be synchronized with the video signal. The time code generator writes the time data and user bit in memory frame by frame, and the last data is always stored in memory. The data is sent to the TRC-1 board through the CPU INTERFACE.
The generator locks with the external time code or the reproduced time code as follows:
When the time code generator is set to the slave lock mode by the switch on the board, the time code data with which the generator locks is input to the generator. The input time code data is written in memory. When the phases of the time code generated by the time code generator and the input time code match, the generator reads the data written in memory and the generates the time code. Then it is written in memory again, and output as a time code from the next frame.

2. Time code reader

The time code reader operates referring to the reference clock generated by the SYSTEM CLK, and reads EXT TC and PB TC.
For inline recording/playback, the time code is reproduced with a delay of 256 blocks, the amount of decode delay, from the PB TC DELAY block while reproducing, and is recorded with a delay of 232 blocks, the amount of encode delay, from the REC DELAY block while recording.
For SYNC LOCK PLAY when the video signal is input, a phase difference between PB TC and VIDEO FRAME is detected by the PHASE DETECTOR, and the TRC-1 board controls the capstan so that both phases match. The LTC reader can interpolate the time code by counting frame pulses. In FF and REW modes, the time code cannot be read from the tape because the tape departs from the head, but the consecutive time code can be output. The mechanism of the consecutive time code is as follows. The BIT CLOCK of TC and frame pulse are generated by the BIT CLOCK CONVERTER using the TACH pulse of the capstan. The frame pulse is input to the LTC reader to interpolate the time code. Then the BIT CLOCK and interpolated time code data is input to the DUMMY TC GENERATER, which generates the interpolated time code LTC.

- **Explanation of block diagram**

FRAME GENERATER
The Sync Clock of the TC reader/generator, 29.97 Hz, 25 Hz and 24 Hz, are generated using 1.44 MHz sent from the CK-31 board.

SYSTEM CLK
Generates the reference clock of the TC reader/generator, 14.318 MHz.

BALANCE INPUT BUFFER
This is a balanced circuit which accepts the external time code input to the EXT TC INPUT connector, and changes the level to the TTL level by the LEVEL CONVERTER.

BIT CLOCK CONVERTER
Generates the BIT BLOCK to interpolate the time code.

TC PB DETECTER
Changes the reproduced time code level to the TTL level.

PB TC DELAY
Delays the reproduced time code by 256 blocks, the amount of decode delay.

P/C & VCO
Makes the start bit of the output LTC meet the sync clock.

TC GENERATOR (CX7907)
This is an LSI for the TC generator, which generates the TC in each format. This uses 2 RAMs; one is used for reading the data for CPU, and the other is used for the data input.

TC READER (CX7912)
This is an LSI for the TC reader, which reads EXT TC and PB TC. Using the external RAM (LSI89), the data is read for CPU.

DUMMY TC GENERATER
In FF or REW mode, dummy TC is generated. The data from the READER is read by the RAM (ICB9)

I/REF PHASE DETECTOR
Detects the phase of the PB TC and the external sync signal.

MONITOR SELECT
Decides the TC monitor output mode by setting the switches.

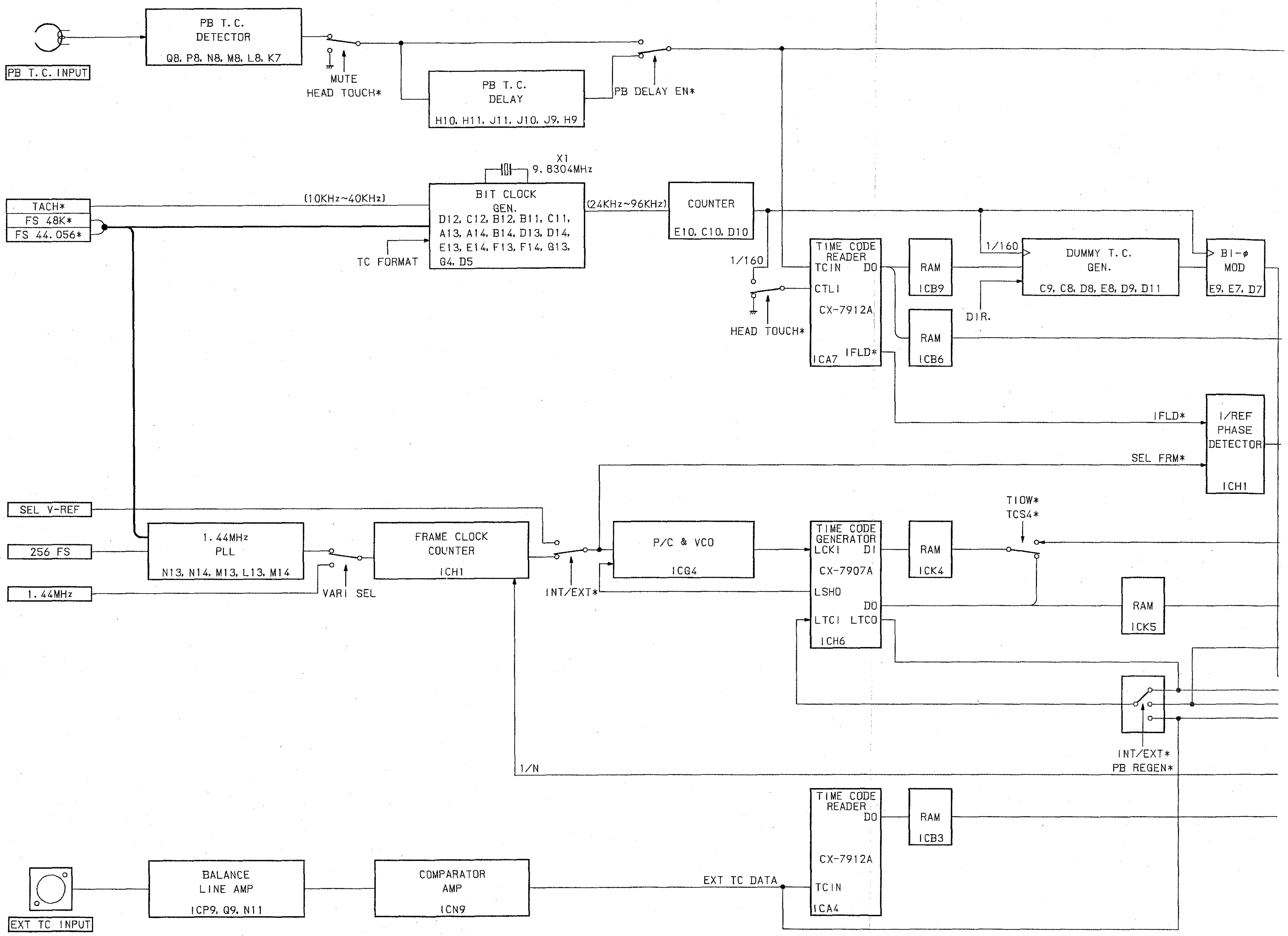
LEVEL ADJ
Adjusts the OUTPUT LEVEL of TC.

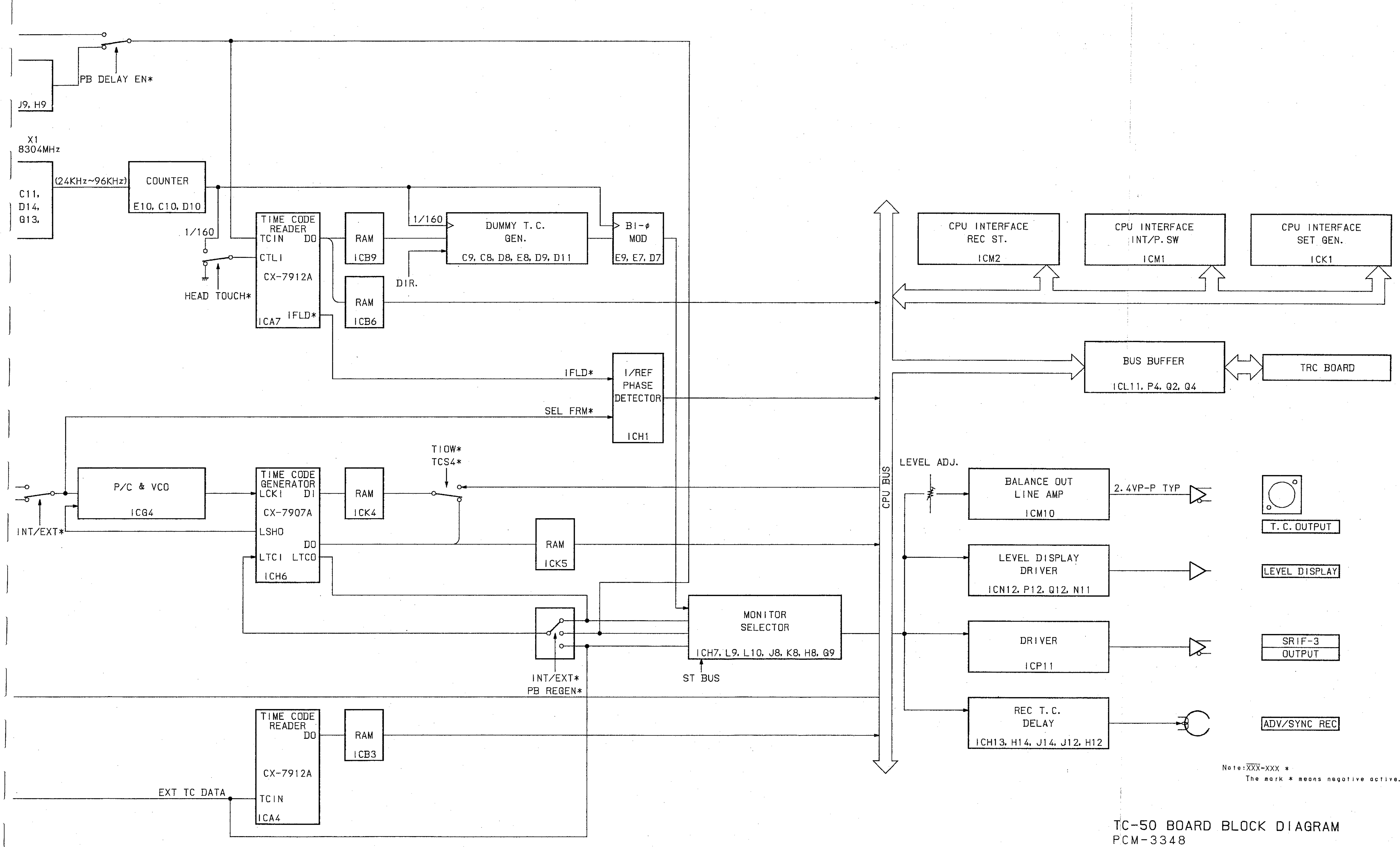
BALANCE OUT LINE AMP
This is a balanced circuit for the TC output.

REC DELAY
Delays the time code by 232 blocks, the amount of encode delay.

CPU INTERFACE
Interfaces mainly with the TRC BOARD.

(CARD RACK) BLOCK DIAGRAM TC-50 (CARD RACK) TC-50 BLOCK DIAGRAM


PB T.C. INPUT
PB T.C. DETECTOR
Q8, P8, N8, M8, L8, K7
MUTE
HEAD TOUCH*
PB T.C. DELAY
H10, H11, J11, J10, J9, H9
PB DELAY EN*
X1
9.8304MHz
TACH*
FS 48K*
FS 44.056*
(10KHz~40KHz)
BIT CLOCK GEN.
D12, C12, B12, B11, C11, A13, A14, B14, D13, D14, E13, E14, F13, F14, G13, G4, D5
TC FORMAT
(24KHz~96KHz)
COUNTER
E10, C10, D10
1/160
HEAD TOUCH*
TIME CODE READER
TCIN
DO
CTLI
CX-7912A
IFLD*
ICA7
RAM
ICB9
RAM
ICB6
1/160
DUMMY T.C. GEN.
C9, C8, D8, E8, D9, D11
DIR.
BI-φ MOD
E9, E7, D7
IFLD*
I/REF PHASE DETECTOR
SEL FRM*
ICH1
SEL V-REF
256 FS
1.44MHz
1.44MHz PLL
N13, N14, M13, L13, M14
VARI SEL
FRAME CLOCK COUNTER
ICH1
INT/EXT*
P/C & VCO
ICG4
TIME CODE GENERATOR
LCKI
DI
CX-7907A
LSHO
DO
LTCI
LTCO
ICH6
RAM
ICK4
TIOW*
TCS4*
RAM
ICK5
INT/EXT*
PB REGEN*
1/N
TIME CODE READER
DO
RAM
ICB3
CX-7912A
TCIN
ICA4
EXT TC DATA
BALANCE LINE AMP
ICP9, Q9, N11
COMPARATOR AMP
ICN9
EXT TC INPUT


PB DELAY EN*
J9, H9
X1
8304MHz
C11,
D14,
G13,
(24KHz~96KHz)
COUNTER
E10, C10, D10
1/160
TIME CODE READER
TCIN
DO
CTLI
CX-7912A
IFLD*
ICA7
HEAD TOUCH*
RAM
ICB9
RAM
ICB6
DIR.
1/160
DUMMY T.C. GEN.
C9, C8, D8, E8, D9, D11
BI-φ MOD
E9, E7, D7
IFLD*
I/REF PHASE DETECTOR
ICH1
SEL FRM*
INT/EXT*
P/C & VCO
ICG4
TIME CODE GENERATOR
LCKI
DI
CX-7907A
LSHO
DO
LTCI
LTCO
ICH6
RAM
ICK4
TIOW*
TCS4*
RAM
ICK5
INT/EXT*
PB REGEN*
MONITOR SELECTOR
ICH7, L9, L10, J8, K8, H8, G9
ST BUS
TIME CODE READER
DO
CX-7912A
TCIN
ICA4
RAM
ICB3
EXT TC DATA
CPU BUS
CPU INTERFACE REC ST.
ICM2
CPU INTERFACE INT/P.SW
ICM1
CPU INTERFACE SET GEN.
ICK1
BUS BUFFER
ICL11, P4, Q2, Q4
TRC BOARD
LEVEL ADJ.
BALANCE OUT LINE AMP
ICM10
2.4VP-P TYP
T.C. OUTPUT
LEVEL DISPLAY DRIVER
ICN12, P12, Q12, N11
LEVEL DISPLAY
DRIVER
ICP11
SRIF-3
OUTPUT
REC T.C. DELAY
ICH13, H14, J14, J12, H12
ADV/SYNC REC

Note: $\overline{XXX}$=XXX *
The mark * means negative active.

TC-50 BOARD BLOCK DIAGRAM
PCM-3348

TRC-1 BOARD

1 WAIT TIMING

When the CPU accesses the external I/O, this sets READY to inactive for the period of the CPU bus cycle T2, and generates the wait state TW after the CPU bus cycle T3.

READY CONT

Sets READY to active when the CPU accesses the peripheral device.

CLOCK GEN

This is a crystal oscillator of 16 MHz, and supplies the 8 MHz CPU clock.

The READY control signal and the RESET signal are synchronized with the CPU clock and supplied to theCPU.

CPU

CMOS 16 bit microprocessor, 8 MHz clock.

ADRS LATCH

Latches the address by the ASTB signal because input and output of the address and data from the CPU are performed in time-sharing.

CPU TIMING

Generates MRD*, MWR*, IOR* and IOW*.

BUS TEST

The data bus buffer is forced to be high impedance by short-circuiting the JR2, and the dummy instruction code 0FDH is output to the CPU of the data bus buffer in the timing of MRD* to perform the address increment.

ADRS DEC

The address bus is decoded, and the chip select signal of memory and I/O is generated.

The access signal of an external I/O is also generated, and sent to 1 WAIT TIMING.

RAM

This uses two (WORD) 256-KBIT high-speed CMOS static RAMs.

C000H to FFFFH are overlapped, but they are not used because of DUAL PORT RAM space.

ROM

This uses 4 (WORD) 256 KBIT CMOS EPROM.

TIMER ROLLER COUNTER

In 24 BIT UP/DOWN COUNTER, TIMER MODE, the timer roller count value is generated by counting TACH pulses by the UP/DOWN counter according to the DIRECTION.

The data is set and read by the CPU.

INTERRUPT CONTROLLER

This uses 2 chips of CXQ71059 in expansion mode. The interruption is explained below in the order of high priority.

SCLK*

This is generated synchronizing with the sector sync for activating the RX116 system timer.

ICTL

For activating the read handler of the internal sector address.

IESA

For activating the read handler of the external sector address

IMRRQ*

This is generated when requested from the MC-33 board through the DUAL PORT RAM.

IMCMP*

This is generated when the data is read by the MC-33 board after the data is sent to the MC-33 board through the DUAL PORT RAM.

I-TCO

For activating the read handler of the TC READER.

I-TCI

Reading the TC GENERATOR data completes.

I-TC2

For activating the read handler of the phase difference between the REFERENCE TC and PB TC.

ISPD

This is generated when the tape speed area is changed. This activates the clutch, tape shifter, etc.

ICRFG

This is generated every time the CRFG pulses are counted by 2000. The counted value of TRFG and SRFG is read, and radius of the tape wind is detected.

IADRD

This is generated when the A/D converter on the RS-24 board completes data collection.

The data is read from the A/D converter on the RS-24 board, and is output to the D/A converter.

IREEL

This is generated every 10 ms.

This is used for increasing and decreasing the reel motor speed.

IPMS

Detects the position of the pulse motor which drives the tape shifter.

ISTPEND

Detects the overrun of the pulse motor which drives the tape shifter.

AUTO PUNCH TRIGGER

Sends the AUTO PUNCH IN/OUT, SOUND MEMORY triggers generated by the CPU to the MC-33 board by the synchronizing it with the sector clock.

REEL FG COUNTER

Counts every time the CRFG pulses are counted by 2,000.

This uses a programmable timer counter CXQ71054.

TACH WIDTH COUNTER

Counts the width of one cycle of CRFG pulse by 3 MHz clock.

SPEED DET

This is composed of the ROM which converts the counted value of TACH WIDTH COUNTER into the tape speed area, and the CPU interface.

PMPLS GEN

Sends 666 Hz clock obtained by dividing 4 MHz clock to the pulse motor which drives the tape shifter.

The counter #1 detects the overrun, and switches ON/OFF of 666 Hz clock.

This uses a programmable timer counter CXQ71054.

SWITCH IO

This is used for the switch input on the TRC-1 board, REC STOP READY input, BOARD TEST jumper socket input, and TRC RUN LED blinking.

This uses a parallel interface unit CXQ71055.

DATA SELECT

Selects an external sector address input to the REMOTE-3 or BNC connector according to the BIT SWITCH setting.

BIT CLK DET

This counts 192 Fs by setting the counter every time the edge of the external sector address which was sampled at 192 Fs is detected, and generates the clock required for the extraction.

SYNC DET

SYNC is extracted from the data whose BIPHASE MARK is decoded.

BIPHASE MARK DEC

Decodes the external sector address which was biphase-mark encoded.

TIMING GEN

Timing required for the serial/parallel conversion is made from the BIT CLOCK and SYNC.

SERIAL PARALLEL CONVERTER

Serial data whose BIPHASE MARK is decoded, is converted into parallel data and latched.

DIVIDER

192 Fs is divided while synchronizing with the sector sync to make 3 MHz and 1 MHz clocks.

TIMING CLK

Makes latch timing of the internal sector address and external sector address.

LATCH TIMING

When the sector address latch is set by the CPU, the latch pulse is output synchronizing with the sector address.

TACH EDGE

Chattering component is deleted from the CRFG 2-phase clock, and an edge signal and the direction signal are generated.

SRIFI TACH

From the edge signal and direction signal, 2-phase TACH pulse required for the REMOTE-1 is generated.

COM R

16-KBIT
equipped
interrupt

MC IO

Parallel i
MC-33 b
Input for
boards a
and inpu
MAE-1

IADRD
This is generated when the A/D converter on the RS-24 board completes data collection.
The data is read from the A/D converter on the RS-24 board, and is output to the D/A converter.

IREEL
This is generated every 10 ms.
This is used for increasing and decreasing the reel motor speed.

IPMS
Detects the position of the pulse motor which drives the tape shifter.

ISTPEND
Detects the overrun of the pulse motor which drives the tape shifter.

AUTO PUNCH TRIGGER
Sends the AUTO PUNCH IN/OUT, SOUND MEMORY triggers generated by the CPU to the MC-33 board by the synchronizing it with the sector clock.

REEL FG COUNTER
Counts every time the CRFG pulses are counted by 2,000.
This uses a programmable timer counter CXQ71054.

TACH WIDTH COUNTER
Counts the width of one cycle of CRFG pulse by 3 MHz clock.

SPEED DET
This is composed of the ROM which converts the counted value of TACH WIDTH COUNTER into the tape speed area, and the CPU interface.

PMPLS GEN
Sends 666 Hz clock obtained by dividing 4 MHz clock to the pulse motor which drives the tape shifter.
The counter #1 detects the overrun, and switches ON/OFF of 666 Hz clock.
This uses a programmable timer counter CXQ71054.

SWITCH IO
This is used for the switch input on the TRC-1 board, REC STOP READY input, BOARD TEST jumper socket input, and TRC RUN LED blinking.
This uses a parallel interface unit CXQ71055.

DATA SELECT
Selects an external sector address input to the REMOTE-3 or BNC connector according to the BIT SWITCH setting.

BIT CLK DET
This counts 192 Fs by setting the counter every time the edge of the external sector address which was sampled at 192 Fs is detected, and generates the clock required for the extraction.

SYNC DET
SYNC is extracted from the data whose BIPHASE MARK is decoded.

BIPHASE MARK DEC
Decodes the external sector address which was biphase-mark encoded.

TIMING GEN
Timing required for the serial/parallel conversion is made from the BIT CLOCK and SYNC.

SERIAL PARALLEL CONVERTER
Serial data whose BIPHASE MARK is decoded, is converted into parallel data and latched.

DIVIDER
192 Fs is divided while synchronizing with the sector sync to make 3 MHz and 1 MHz clocks.

TIMING CLK
Makes latch timing of the internal sector address and external sector address.

LATCH TIMING
When the sector address latch is set by the CPU, the latch pulse is output synchronizing with the sector address.

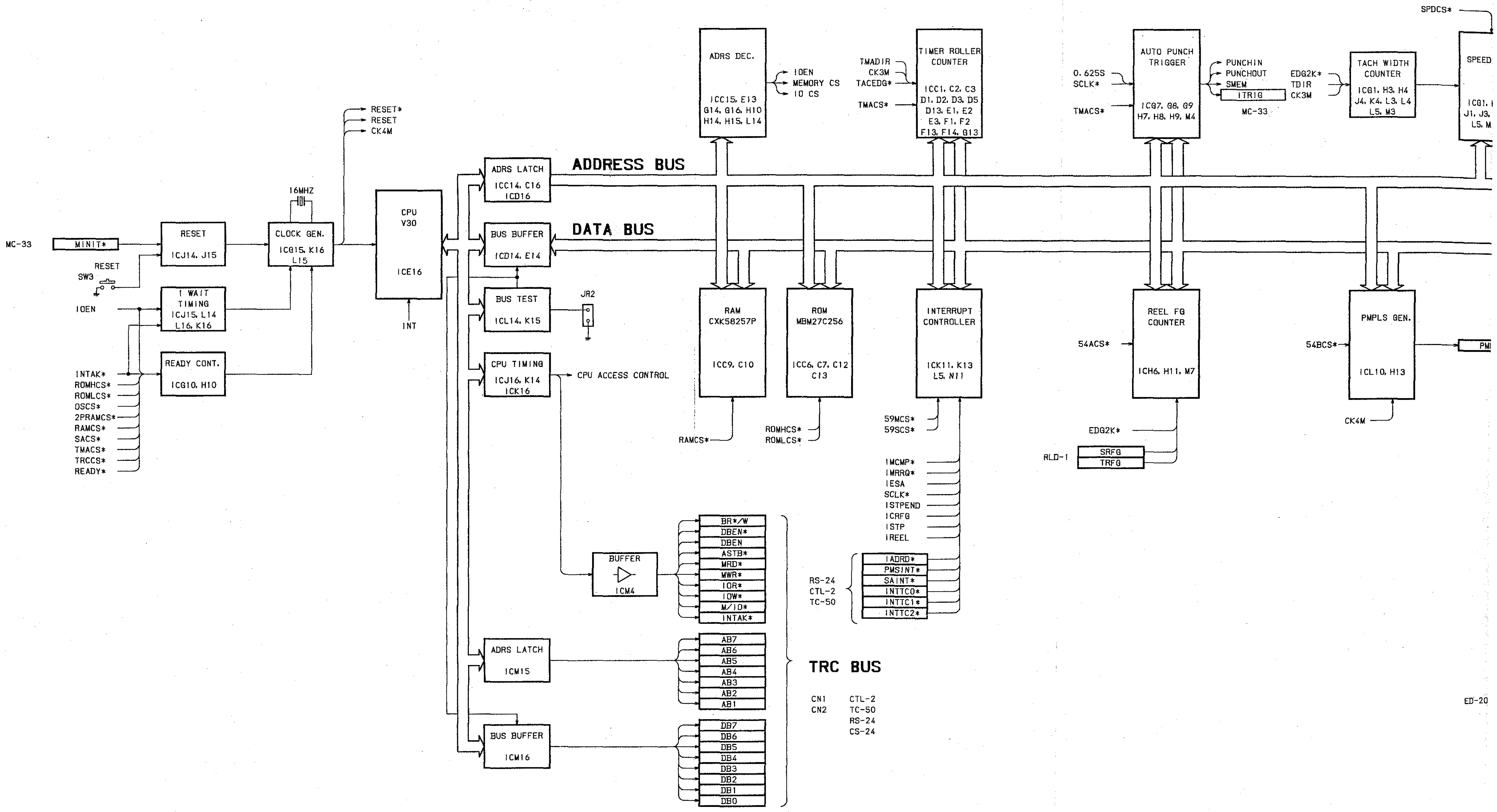
TACH EDGE
Chattering component is deleted from the CRFG 2-phase clock, and an edge signal and the direction signal are generated.

SRIFI TACH
From the edge signal and direction signal, 2-phase TACH pulse required for the REMOTE-1 is generated.

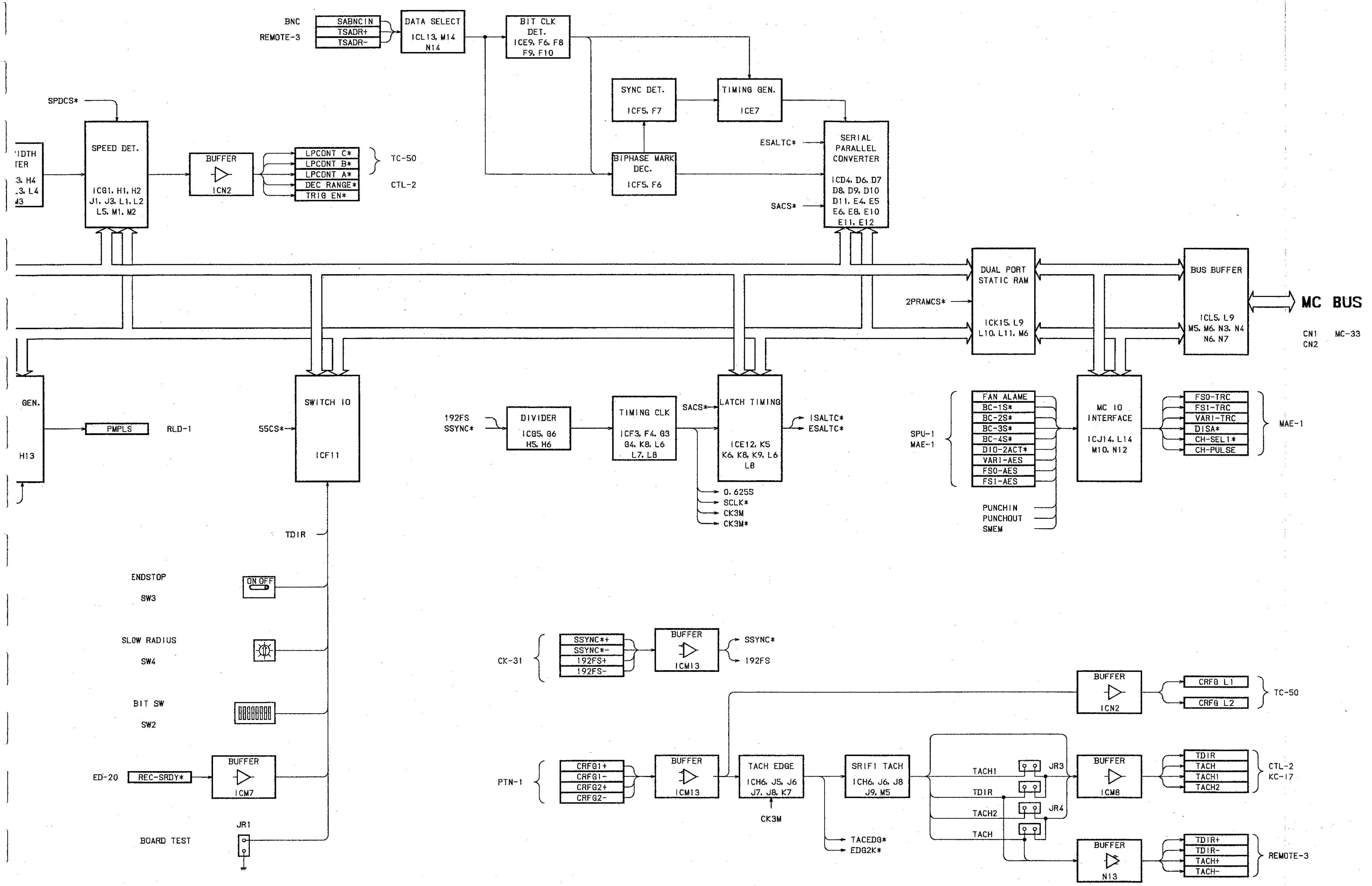
COM RAM
16-KBIT CMOS DUAL PORT STATIC RAM equipped with the port arbitration(?) function and interruption function.

MC IO INTERFACE
Parallel interface unit on the expansion bus of the MC-33 board.
Input for checking whether the SPU-1 and DET-6 boards are inserted or not, input of the fan alarm, and input and output of 2CH DIO controls on the MAE-1 board.

(CARD RACK) BLOCK DIAGRAM TRC-1   (CARD RACK) TRC-1 BLOCK DIAGRAM



MC-33
MINIT*
RESET
SW3
IOEN
INTAK*
ROMHCS*
ROMLCS*
OSCS*
2PRAMCS*
RAMCS*
SACS*
TMACS*
TRCCS*
READY*
RESET
ICJ14, J15
1 WAIT TIMING
ICJ15, L14
L16, K16
READY CONT.
ICG10, H10
16MHZ
CLOCK GEN.
ICG15, K16
L15
RESET*
RESET
CK4M
CPU
V30
ICE16
INT
ADRS LATCH
ICC14, C16
ICD16
BUS BUFFER
ICD14, E14
BUS TEST
ICL14, K15
JR2
CPU TIMING
ICJ16, K14
ICK16
CPU ACCESS CONTROL
ADDRESS BUS
DATA BUS
BUFFER
ICM4
BR*/W
DBEN*
DBEN
ASTB*
MRD*
MWR*
IOR*
IOW*
M/IO*
INTAK*
ADRS LATCH
ICM15
AB7
AB6
AB5
AB4
AB3
AB2
AB1
BUS BUFFER
ICM16
DB7
DB6
DB5
DB4
DB3
DB2
DB1
DB0
TRC BUS
CN1 CTL-2
CN2 TC-50
RS-24
CS-24
ADRS DEC.
ICC15, E13
G14, G16, H10
H14, H15, L14
IOEN
MEMORY CS
IO CS
RAM
CXK58257P
ICC9, C10
RAMCS*
ROM
MBM27C256
ICC6, C7, C12
C13
ROMHCS*
ROMLCS*
TMADIR
CK3M
TACEDG*
TMACS*
TIMER ROLLER COUNTER
ICC1, C2, C3
D1, D2, D3, D5
D13, E1, E2
E3, F1, F2
F13, F14, G13
INTERRUPT CONTROLLER
ICK11, K13
L5, N11
59MCS*
59SCS*
IMCMP*
IMRRQ*
IESA
SCLK*
ISTPEND
ICRFG
ISTP
IREEL
RS-24
CTL-2
TC-50
IADRD*
PMSINT*
SAINT*
INTTC0*
INTTC1*
INTTC2*
0.625S
SCLK*
TMACS*
AUTO PUNCH TRIGGER
ICG7, G8, G9
H7, H8, H9, M4
PUNCHIN
PUNCHOUT
SMEM
ITRIG
MC-33
REEL FG COUNTER
ICH6, H11, M7
54ACS*
EDG2K*
RLD-1
SRFG
TRFG
EDG2K*
TDIR
CK3M
TACH WIDTH COUNTER
ICG1, H3, H4
J4, K4, L3, L4
L5, M3
SPDCS*
SPEED
ICG1,
J1, J3,
L5, M
PMPLS GEN.
ICL10, H13
54BCS*
CK4M
PM
ED-20

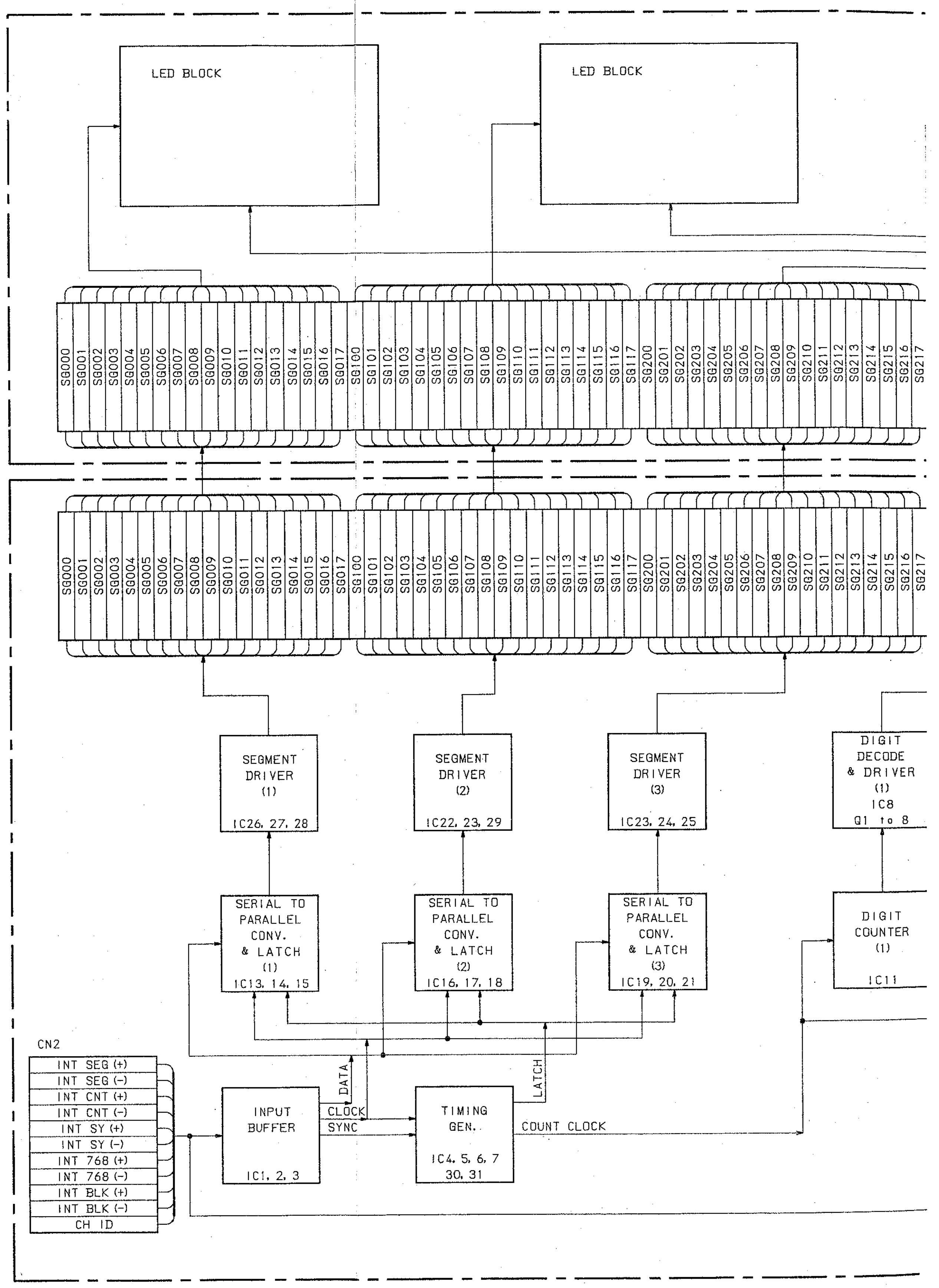

BNC
REMOTE-3
SABNCIN
TSADR+
TSADR-
DATA SELECT
ICL13, M14
N14
BIT CLK DET.
ICE9, F6, F8
F9, F10
SYNC DET.
ICF5, F7
TIMING GEN.
ICE7
BIPHASE MARK DEC.
ICF5, F6
ESALTC*
SERIAL PARALLEL CONVERTER
ICD4, D6, D7
D8, D9, D10
D11, E4, E5
E6, E8, E10
E11, E12
SACS*
SPDCS*
SPEED DET.
ICG1, H1, H2
J1, J3, L1, L2
L5, M1, M2
BUFFER
ICN2
LPCONT C*
LPCONT B*
LPCONT A*
DEC RANGE*
TRIG EN*
TC-50
CTL-2
DUAL PORT STATIC RAM
2PRAMCS*
ICK15, L9
L10, L11, M6
BUS BUFFER
ICL5, L9
M5, M6, N3, N4
N6, N7
MC BUS
CN1
CN2
MC-33
GEN.
H13
PMPLS
RLD-1
SWITCH IO
55CS*
ICF11
192FS
SSYNC*
DIVIDER
ICG5, G6
H5, H6
TIMING CLK
ICF3, F4, G3
G4, K8, L6
L7, L8
SACS*
LATCH TIMING
ICE12, K5
K6, K8, K9, L6
L8
ISALTC*
ESALTC*
0.625S
SCLK*
CK3M
CK3M*
SPU-1
MAE-1
FAN ALAME
BC-1S*
BC-2S*
BC-3S*
BC-4S*
DIO-2ACT*
VARI-AES
FS0-AES
FS1-AES
PUNCHIN
PUNCHOUT
SMEM
MC IO INTERFACE
ICJ14, L14
M10, N12
FS0-TRC
FS1-TRC
VARI-TRC
DISA*
CH-SEL1*
CH-PULSE
MAE-1
TDIR
ENDSTOP
SW3
ON OFF
SLOW RADIUS
SW4
BIT SW
SW2
ED-20
REC-SRDY*
BUFFER
ICM7
JR1
BOARD TEST
CK-31
SSYNC*+
SSYNC*-
192FS+
192FS-
BUFFER
ICM13
SSYNC*
192FS
BUFFER
ICN2
CRFG L1
CRFG L2
TC-50
PTN-1
CRFG1+
CRFG1-
CRFG2+
CRFG2-
BUFFER
ICM13
TACH EDGE
ICH6, J5, J6
J7, J8, K7
CK3M
TACEDG*
EDG2K*
SRIFI TACH
ICH6, J6, J8
J9, M5
TACH1
TDIR
TACH2
TACH
JR3
JR4
BUFFER
ICM8
TDIR
TACH
TACH1
TACH2
CTL-2
KC-17
BUFFER
N13
TDIR+
TDIR-
TACH+
TACH-
REMOTE-3

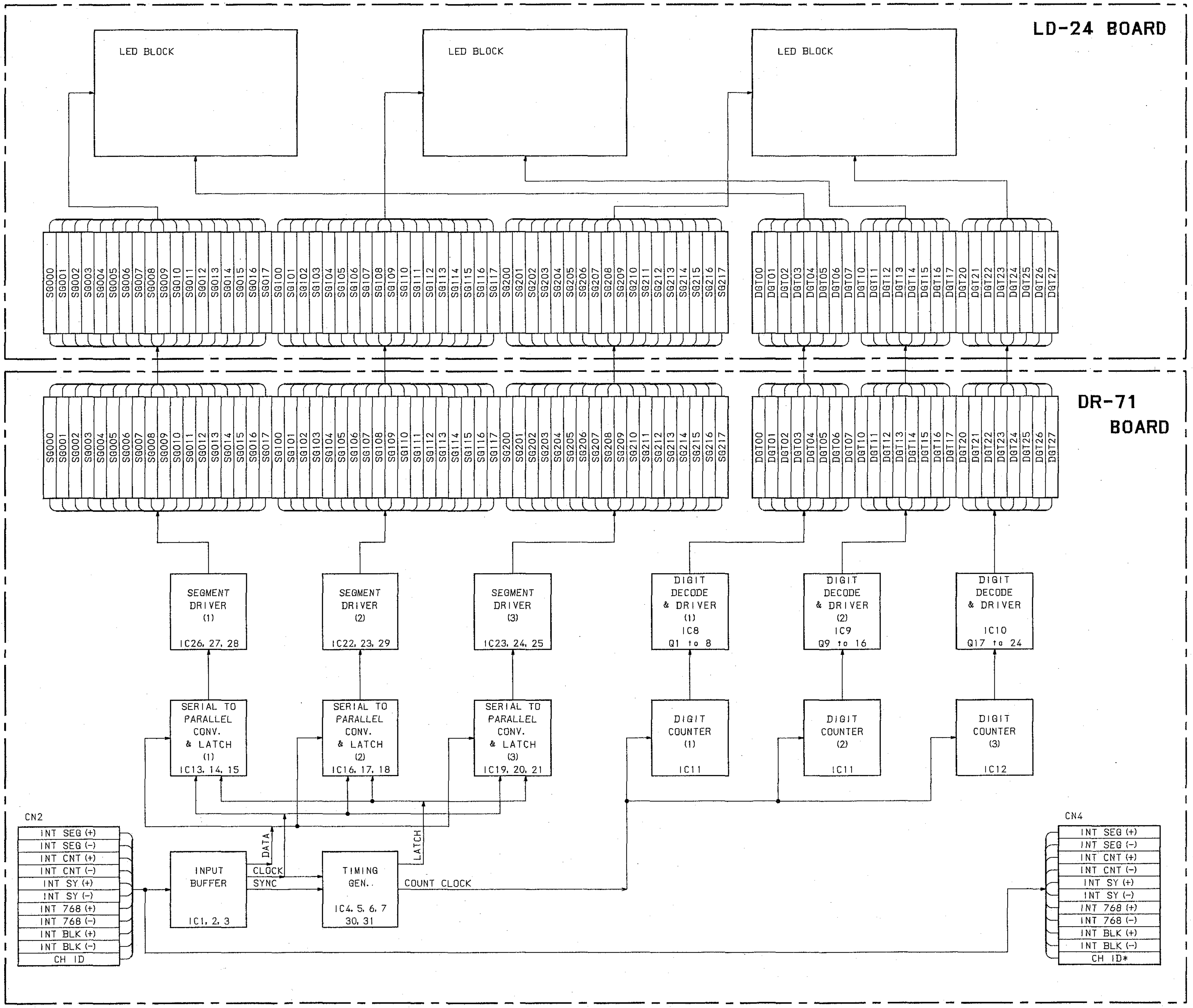
Note: $\overline{XXX}$=XXX *
The mark * means negative active.

TRC-1 BOARD BLOCK DIAGRAM
PCM-3348

DR-71, LD-24 BOARDS

The DR-71 and LD-24 boards make the LED meters light by the level display information of the Digital Audio channel which was processed on the MAE-1 board, and sent by a serial signal. One pair of boards can process 24 channels so that two pairs are used. From the MAE-1 board, the data for 48 channels, 16-bit data for one channel, are sent at a time as one sector. Therefore, the transmission rate of Fs 48.0 kHz is 768 kbps.
INT768 is a serial transmission clock, and the INTSY is a sync signal for serial transmission. INTSEG sends ON/OFF information of the 16 segment meter, and INTCNT sends the status data of the REC READY, etc. INTBLK is a blanking signal, and the CH-ID is a signal for switching 1 to 24 channels and 25 to 48 channels.
The display is an 8-channel time-sharing dynamic lighting. The input signal passes the INPUT BUFFER circuit, and is converted into the CMOS level. INTSEG and INTCNT are converted into a parallel signal by the INT 768 clock in the S->P conversion circuit, and is latched by the latch clock from the TIMING generation circuit. Then it drives the segment side of the LED block through the driver. It also counts the clock generated by the TIMING generation circuit, and by decoding it in 3-8 decode, the drive signal for the digit side is obtained, which drives the digit side of the LED through the transistor driver. Two boards are connected in cascade so that the input signal is directly output to CN4.


LED BLOCK
LED BLOCK
SG000 SG001 SG002 SG003 SG004 SG005 SG006 SG007 SG008 SG009 SG010 SG011 SG012 SG013 SG014 SG015 SG016 SG017
SG100 SG101 SG102 SG103 SG104 SG105 SG106 SG107 SG108 SG109 SG110 SG111 SG112 SG113 SG114 SG115 SG116 SG117
SG200 SG201 SG202 SG203 SG204 SG205 SG206 SG207 SG208 SG209 SG210 SG211 SG212 SG213 SG214 SG215 SG216 SG217
SG000 SG001 SG002 SG003 SG004 SG005 SG006 SG007 SG008 SG009 SG010 SG011 SG012 SG013 SG014 SG015 SG016 SG017
SG100 SG101 SG102 SG103 SG104 SG105 SG106 SG107 SG108 SG109 SG110 SG111 SG112 SG113 SG114 SG115 SG116 SG117
SG200 SG201 SG202 SG203 SG204 SG205 SG206 SG207 SG208 SG209 SG210 SG211 SG212 SG213 SG214 SG215 SG216 SG217
SEGMENT DRIVER (1) IC26, 27, 28
SEGMENT DRIVER (2) IC22, 23, 29
SEGMENT DRIVER (3) IC23, 24, 25
DIGIT DECODE & DRIVER (1) IC8 Q1 to 8
SERIAL TO PARALLEL CONV. & LATCH (1) IC13, 14, 15
SERIAL TO PARALLEL CONV. & LATCH (2) IC16, 17, 18
SERIAL TO PARALLEL CONV. & LATCH (3) IC19, 20, 21
DIGIT COUNTER (1) IC11
CN2
INT SEG (+)
INT SEG (-)
INT CNT (+)
INT CNT (-)
INT SY (+)
INT SY (-)
INT 768 (+)
INT 768 (-)
INT BLK (+)
INT BLK (-)
CH ID
INPUT BUFFER IC1, 2, 3
DATA
CLOCK
SYNC
LATCH
TIMING GEN. IC4, 5, 6, 7 30, 31
COUNT CLOCK


LD-24 BOARD
LED BLOCK
LED BLOCK
LED BLOCK
SG000 SG001 SG002 SG003 SG004 SG005 SG006 SG007 SG008 SG009 SG010 SG011 SG012 SG013 SG014 SG015 SG016 SG017
SG100 SG101 SG102 SG103 SG104 SG105 SG106 SG107 SG108 SG109 SG110 SG111 SG112 SG113 SG114 SG115 SG116 SG117
SG200 SG201 SG202 SG203 SG204 SG205 SG206 SG207 SG208 SG209 SG210 SG211 SG212 SG213 SG214 SG215 SG216 SG217
DGT00 DGT01 DGT02 DGT03 DGT04 DGT05 DGT06 DGT07
DGT10 DGT11 DGT12 DGT13 DGT14 DGT15 DGT16 DGT17
DGT20 DGT21 DGT22 DGT23 DGT24 DGT25 DGT26 DGT27
DR-71 BOARD
SEGMENT DRIVER (1) IC26, 27, 28
SEGMENT DRIVER (2) IC22, 23, 29
SEGMENT DRIVER (3) IC23, 24, 25
DIGIT DECODE & DRIVER (1) IC8 Q1 to 8
DIGIT DECODE & DRIVER (2) IC9 Q9 to 16
DIGIT DECODE & DRIVER IC10 Q17 to 24
SERIAL TO PARALLEL CONV. & LATCH (1) IC13, 14, 15
SERIAL TO PARALLEL CONV. & LATCH (2) IC16, 17, 18
SERIAL TO PARALLEL CONV. & LATCH (3) IC19, 20, 21
DIGIT COUNTER (1) IC11
DIGIT COUNTER (2) IC11
DIGIT COUNTER (3) IC12
CN2
INT SEG (+)
INT SEG (−)
INT CNT (+)
INT CNT (−)
INT SY (+)
INT SY (−)
INT 768 (+)
INT 768 (−)
INT BLK (+)
INT BLK (−)
CH ID
INPUT BUFFER IC1, 2, 3
DATA
CLOCK
SYNC
LATCH
TIMING GEN. IC4, 5, 6, 7 30, 31
COUNT CLOCK
CN4
INT SEG (+)
INT SEG (−)
INT CNT (+)
INT CNT (−)
INT SY (+)
INT SY (−)
INT 768 (+)
INT 768 (−)
INT BLK (+)
INT BLK (−)
CH ID*

Note: $\overline{XXX}$=XXX*
The mark* means negative active

DR-71/LD-24 BOARD BLOCK DIAGRM
PCM-3348

KC-17 BOARD

[Outline]

The main functions of the KC-17 board are KEY data input and display data output. The KEY data to be input are SW data from the KY-140, 141, 143 boards, command data from REMOTE-1, and command data from the RIO-1 board*. When ON/OFF setting of the data is changed, it is sent to the MC-33 board after deleting chattering. The display data to be output are LED LAMP data to the KY-140 to 143 boards, and status data to REMOTE-1, and these are supplied from the MC-33 board.
* RIO-1 board: Board of the DABK-3340 (SRIF-4 interface kit)

CLOCK GEN
Divides 8 MHz to 4 MHz and 2 MHz.

RESET
Reset the CPU by the INITIALIZE signal from the MC-33 board.

CPU
Z80 CPU. This operates by 4 MHz.

RAM
Uses CXK5864PS-12L. 8 K bytes

ROM
Uses MBM27C128-25. 32 K bytes.

INTERRUPT CONTROLLER
Uses CXQ71059P. Interrupt controller. 7 interrupt signals are connected. The priority is as shown below.

ITMCH	Interrupt for the chattering timer. (approx. 4.8 msec.)
IRVRQ	Interrupt for reception request from the MC-33 board.
ISDRQ	Interrupt of transmission completion to the MC-33 board.
I79A	KEY interrupt from KEY/DISPLAY CONTROLLER A
I79B	KEY interrupt from KEY/DISPLAY CONTROLLER B
I79C	KEY interrupt from KEY/DISPLAY CONTROLLER C (not used)
ITMBL	Interrupt for a blinking display timer. (approx. 77 msec.)

PARALLELL I/O
Uses CXQ71055P. 8-bit parallel interface.
This is used for receiving the display data from the MC-33 board, and for transmitting the KEY change data to the MC-33 board.
This is used in mode 1, and the port 0 is used for input, the port 1 is for output, and the port 2 is for handshake.

KEY/DISPLAY CONTROLLER A
Uses μPD8279C-5. KEY/display controller.
This is used for KEY data input from the KY-140, 141 and 143 boards and REMOTE-1, and display data output to the KY-140, 141 and 142 boards.

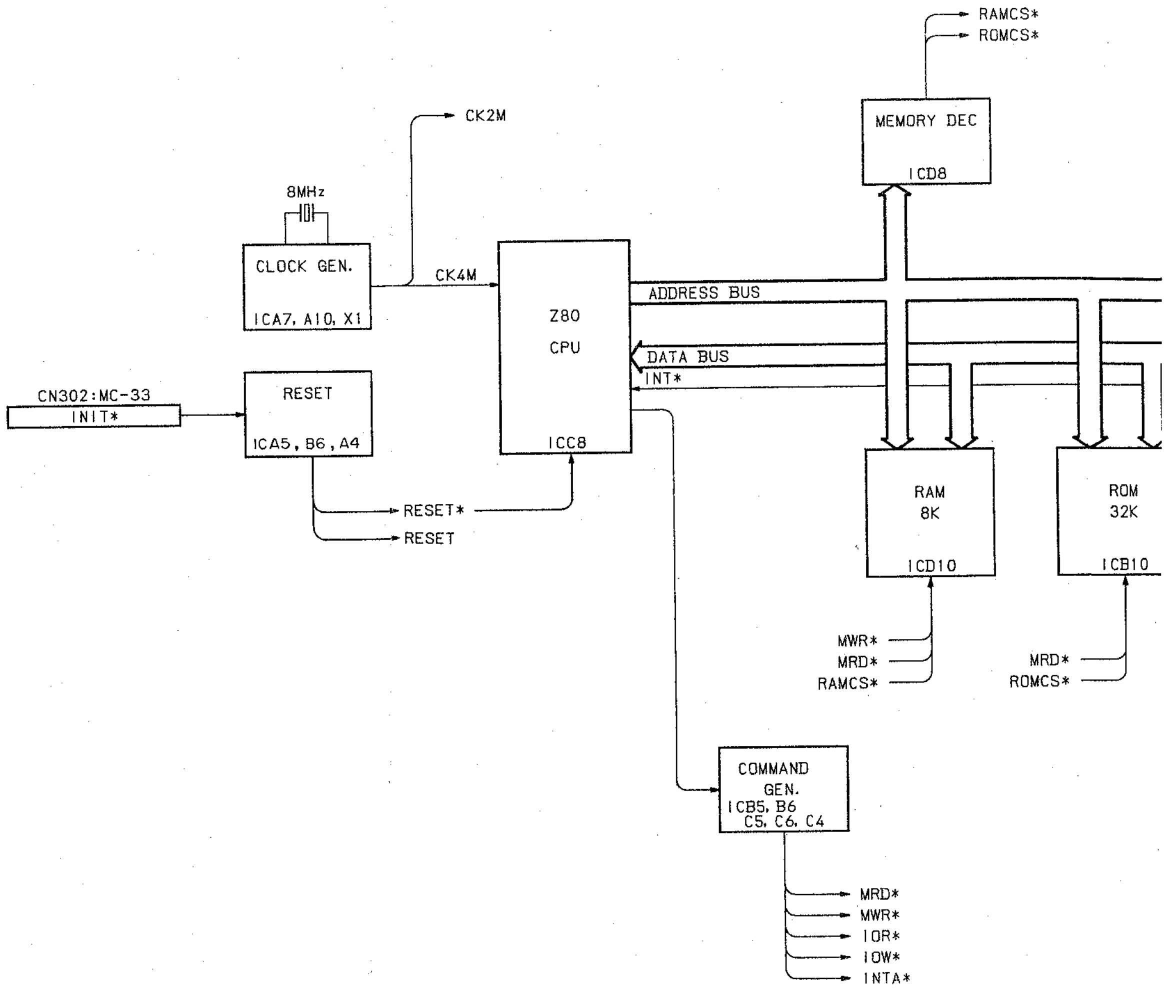
KEY/DISPLAY CONTROLLER B
Uses μPD8279C-5. KEY/display controller.
This is used for KEY data input from the RIO-1 board, and display data output to the KY-140 board.

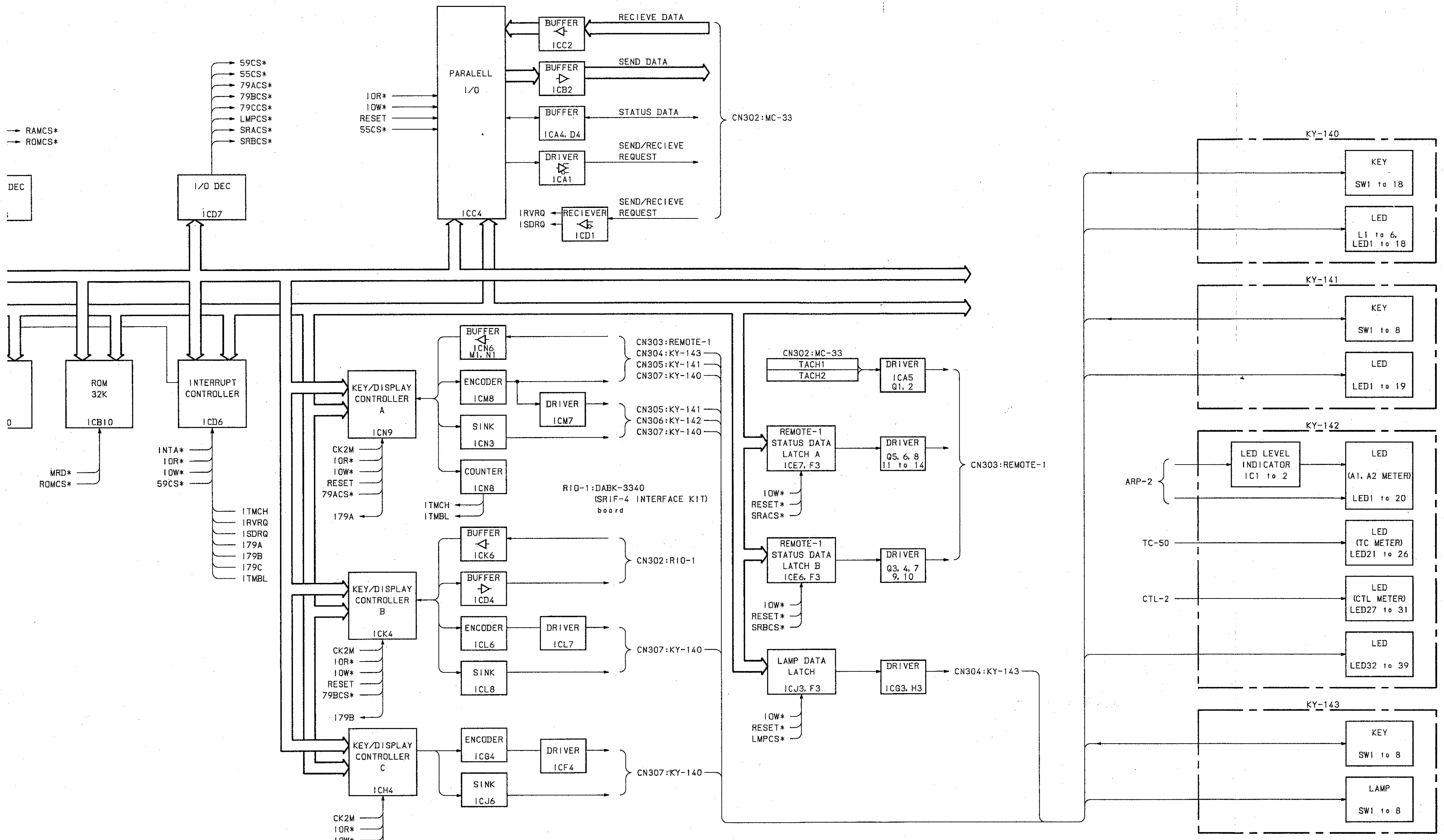
KEY/DISPLAY CONTROLLER C
Uses μPD8279C-5. KEY/display controller.
This is used for display data output to the KY-140 board.
(The KEY controller is not used.)

TACH1, TACH2
Outputs the TACH pulse signal from the TRC-1 board to REMOTE-1.

REMOTE-1 STATUS DATA LATCH A,
REMOTE-1 STATUS DATA LATCH B
REMOTE-1 status data is latched and output.

LAMP DATA LATCH
The LAMP data (Syscon LAMP; FF, STOP, REW, etc.) is latched and output to the KY-143 board.




RAMCS*
ROMCS*
DEC
59CS*
55CS*
79ACS*
79BCS*
79CCS*
LMPCS*
SRACS*
SRBCS*
I/O DEC
ICD7
IOR*
IOW*
RESET
55CS*
PARALELL
I/O
ICC4
BUFFER
ICC2
RECIEVE DATA
BUFFER
ICB2
SEND DATA
BUFFER
ICA4, D4
STATUS DATA
DRIVER
ICA1
SEND/RECIEVE
REQUEST
IRVRQ
ISDRQ
RECIEVER
ICD1
SEND/RECIEVE
REQUEST
CN302:MC-33
ROM
32K
ICB10
MRD*
ROMCS*
INTERRUPT
CONTROLLER
ICD6
INTA*
IOR*
IOW*
59CS*
ITMCH
IRVRQ
ISDRQ
179A
179B
179C
ITMBL
KEY/DISPLAY
CONTROLLER
A
ICN9
CK2M
IOR*
IOW*
RESET
79ACS*
179A
BUFFER
ICN6
M1, N1
ENCODER
ICM8
DRIVER
ICM7
SINK
ICN3
COUNTER
ICN8
ITMCH
ITMBL
CN303:REMOTE-1
CN304:KY-143
CN305:KY-141
CN307:KY-140
CN305:KY-141
CN306:KY-142
CN307:KY-140
RIO-1:DABK-3340
(SRIF-4 INTERFACE KIT)
board
KEY/DISPLAY
CONTROLLER
B
ICK4
CK2M
IOR*
IOW*
RESET
79BCS*
179B
BUFFER
ICK6
BUFFER
ICD4
CN302:RIO-1
ENCODER
ICL6
DRIVER
ICL7
SINK
ICL8
CN307:KY-140
KEY/DISPLAY
CONTROLLER
C
ICH4
CK2M
IOR*
IOW*
RESET
79CCS*
179C
ENCODER
ICG4
DRIVER
ICF4
SINK
ICJ6
CN307:KY-140
CN302:MC-33
TACH1
TACH2
DRIVER
ICA5
Q1, 2
REMOTE-1
STATUS DATA
LATCH A
ICE7, F3
IOW*
RESET*
SRACS*
DRIVER
Q5, 6, 8
11 to 14
CN303:REMOTE-1
REMOTE-1
STATUS DATA
LATCH B
ICE6, F3
IOW*
RESET*
SRBCS*
DRIVER
Q3, 4, 7
9, 10
LAMP DATA
LATCH
ICJ3, F3
IOW*
RESET*
LMPCS*
DRIVER
ICG3, H3
CN304:KY-143
KY-140
KEY
SW1 to 18
LED
L1 to 6,
LED1 to 18
KY-141
KEY
SW1 to 8
LED
LED1 to 19
KY-142
ARP-2
LED LEVEL
INDICATOR
IC1 to 2
LED
(A1, A2 METER)
LED1 to 20
TC-50
LED
(TC METER)
LED21 to 26
CTL-2
LED
(CTL METER)
LED27 to 31
LED
LED32 to 39
KY-143
KEY
SW1 to 8
LAMP
SW1 to 8

Note: $\overline{\text{XXX}}$=XXX*
The mark * means negative active

KC-17/KY-140, 141, 142, 143
BOARD BLOCK DIAGRAM
PCM-3348

REC-5 BOARD

Signals recorded on the DIGITAL, CTL, TC, A1 and A2 tracks are classified to the data (HDM-1 signal from the encoder in case of DIDGITAL CH) or TEST SIG (square signal of single frequency) by the TEST-SIG EN* (Low in TEST mode), and latched by the RCK1, 2 sent from the main controller. The main controller supplies the puls train timing signal of DIGITAL.CH CTL and TC whose waveform is shaped by W-SYNC*, 192FS, to the driver. (The puls train timing signal is not output to the A1 and A2 drivers.) The current with the same polarity as the signal latched by the RCK1, 2 (DIGITAL.CH, CTL, TC) flows in the driver according to the pulse train timing signal. The same current as the input signal to the driver flows in A1 and A2.

The current adjustment is executed by adjusting the voltage supplied to the driver.

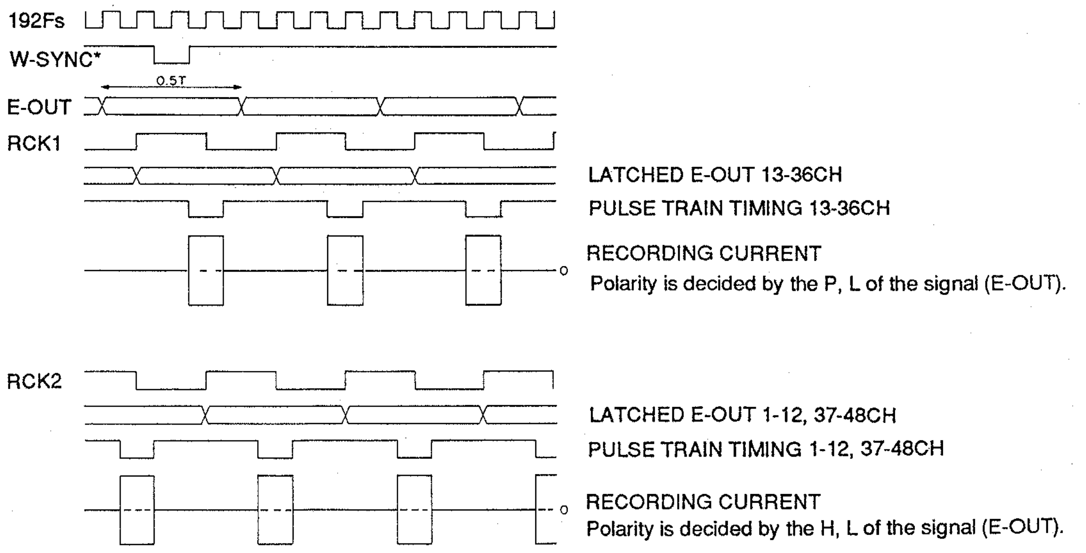
The REC.ST* (REC STATUS) signal has the information on REC ON/OFF of the AUX track, switching the ADV/SYNC REC, REC INHIBIT* (Low: REC inhibit) and error code. This is input to the REC board in series. This signal is converted into the parallel data, and is sent to the main controller to perform the operation according to the information.

The REC ON signal has the information on REC ON/OFF of all DIGITAL 48 channels. This signal is sent to the main controller, and executes the REC ON/OFF of each channel. (In case of OFF, the timing signal from the main controller is set to HIGH.)

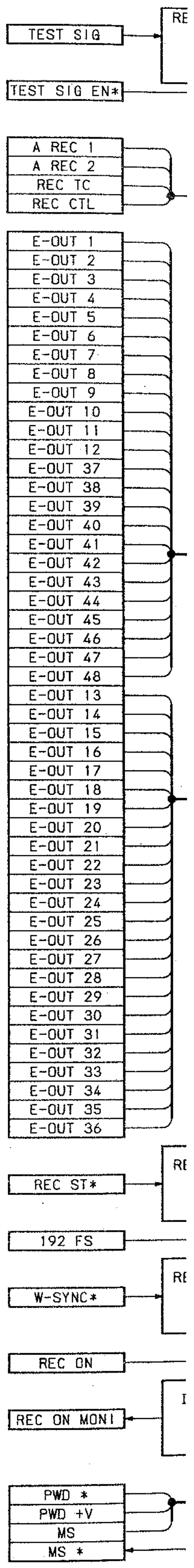
The signal delayed by 1W-SYNC is output from the main controller as REC ON MONI. (serial signal)

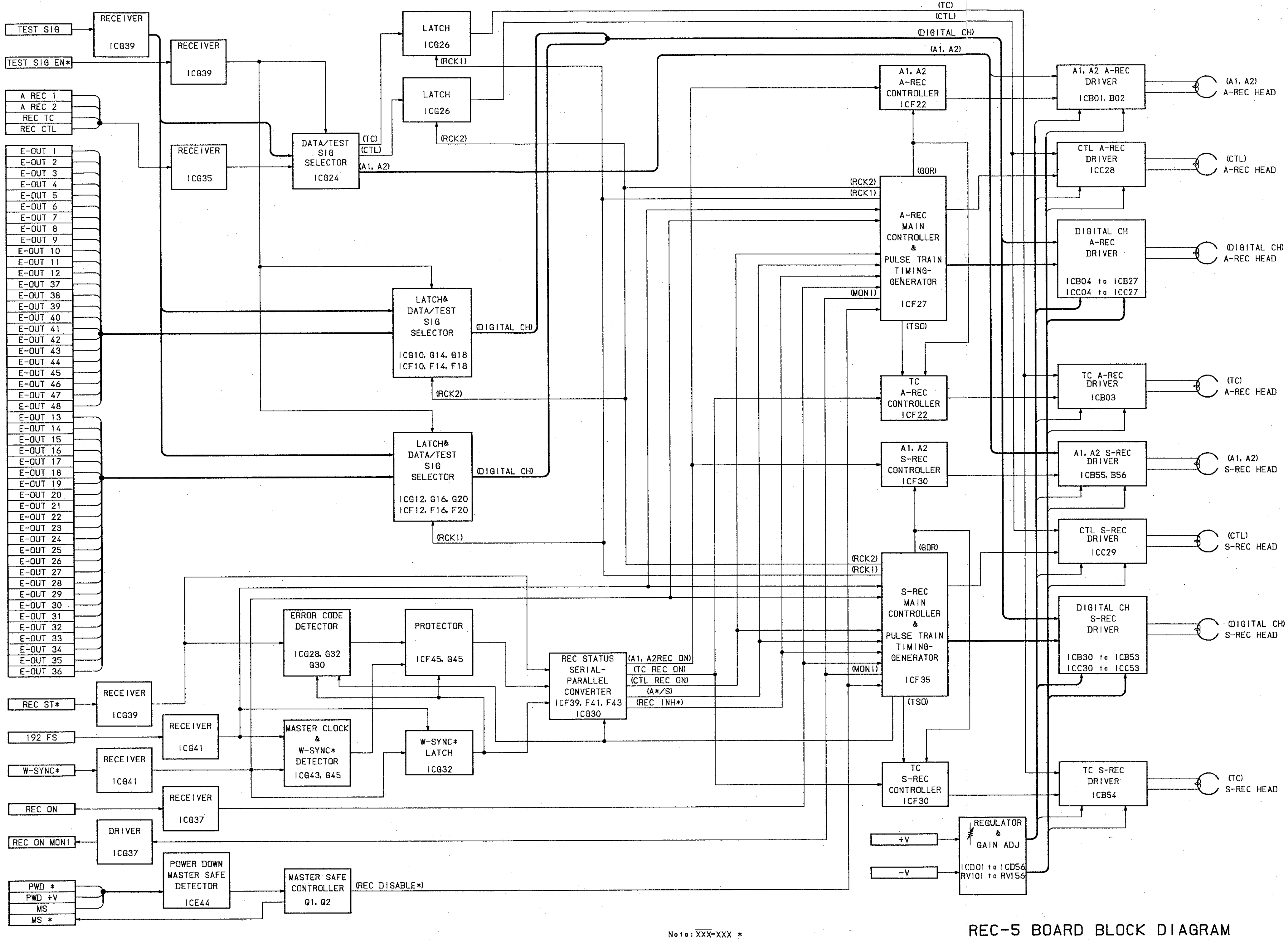
The PWD+V (POWER DOWN) signal detects the rising edge of +15 V power. It is detected together with the MS (MASTER SAFE) signal, and they make the REC DISABLE (LOW: REC inhibit) signal, which is sent to the main controller for designating REC able/disable of all tracks. It is output as MS* simultaneously.

The REC board is equipped with a protector (safety device), and detects the error code of 192 Fs, W-SYNC* and REC STATUS. If 192 Fs or W-SYNC* is cut or an error code occurs, the safety device is activated, and the parallel REC STATUS information sent to the main controller is cleared. Then all tracks are set to REC OFF.


192Fs
W-SYNC*
0.5T
E-OUT
RCK1
LATCHED E-OUT 13-36CH
PULSE TRAIN TIMING 13-36CH
RECORDING CURRENT
Polarity is decided by the P, L of the signal (E-OUT).
RCK2
LATCHED E-OUT 1-12, 37-48CH
PULSE TRAIN TIMING 1-12, 37-48CH
RECORDING CURRENT
Polarity is decided by the H, L of the signal (E-OUT).

TIMING CHART


TEST SIG
TEST SIG EN*
A REC 1
A REC 2
REC TC
REC CTL
E-OUT 1
E-OUT 2
E-OUT 3
E-OUT 4
E-OUT 5
E-OUT 6
E-OUT 7
E-OUT 8
E-OUT 9
E-OUT 10
E-OUT 11
E-OUT 12
E-OUT 37
E-OUT 38
E-OUT 39
E-OUT 40
E-OUT 41
E-OUT 42
E-OUT 43
E-OUT 44
E-OUT 45
E-OUT 46
E-OUT 47
E-OUT 48
E-OUT 13
E-OUT 14
E-OUT 15
E-OUT 16
E-OUT 17
E-OUT 18
E-OUT 19
E-OUT 20
E-OUT 21
E-OUT 22
E-OUT 23
E-OUT 24
E-OUT 25
E-OUT 26
E-OUT 27
E-OUT 28
E-OUT 29
E-OUT 30
E-OUT 31
E-OUT 32
E-OUT 33
E-OUT 34
E-OUT 35
E-OUT 36
REC ST*
192 FS
W-SYNC*
REC ON
REC ON MONI
PWD *
PWD +V
MS
MS *


TEST SIG
TEST SIG EN*
A REC 1
A REC 2
REC TC
REC CTL
E-OUT 1
E-OUT 2
E-OUT 3
E-OUT 4
E-OUT 5
E-OUT 6
E-OUT 7
E-OUT 8
E-OUT 9
E-OUT 10
E-OUT 11
E-OUT 12
E-OUT 37
E-OUT 38
E-OUT 39
E-OUT 40
E-OUT 41
E-OUT 42
E-OUT 43
E-OUT 44
E-OUT 45
E-OUT 46
E-OUT 47
E-OUT 48
E-OUT 13
E-OUT 14
E-OUT 15
E-OUT 16
E-OUT 17
E-OUT 18
E-OUT 19
E-OUT 20
E-OUT 21
E-OUT 22
E-OUT 23
E-OUT 24
E-OUT 25
E-OUT 26
E-OUT 27
E-OUT 28
E-OUT 29
E-OUT 30
E-OUT 31
E-OUT 32
E-OUT 33
E-OUT 34
E-OUT 35
E-OUT 36
REC ST*
192 FS
W-SYNC*
REC ON
REC ON MONI
PWD *
PWD +V
MS
MS *
RECEIVER ICG39
RECEIVER ICG39
RECEIVER ICG35
DATA/TEST SIG SELECTOR ICG24
LATCH ICG26
LATCH ICG26
(RCK1)
(RCK2)
(TC)
(CTL)
(A1, A2)
LATCH& DATA/TEST SIG SELECTOR ICG10, G14, G18 ICF10, F14, F18
(DIGITAL CH)
(RCK2)
LATCH& DATA/TEST SIG SELECTOR ICG12, G16, G20 ICF12, F16, F20
(DIGITAL CH)
(RCK1)
RECEIVER ICG39
RECEIVER ICG41
RECEIVER ICG41
RECEIVER ICG37
DRIVER ICG37
POWER DOWN MASTER SAFE DETECTOR ICE44
ERROR CODE DETECTOR ICG28, G32 G30
PROTECTOR ICF45, G45
MASTER CLOCK & W-SYNC* DETECTOR ICG43, G45
W-SYNC* LATCH ICG32
MASTER SAFE CONTROLLER Q1, Q2
(REC DISABLE*)
REC STATUS SERIAL-PARALLEL CONVERTER ICF39, F41, F43 ICG30
(A1, A2REC ON)
(TC REC ON)
(CTL REC ON)
(A*/S)
(REC INH*)
(TC)
(CTL)
(DIGITAL CH)
(A1, A2)
A1, A2 A-REC CONTROLLER ICF22
(GOR)
(RCK2)
(RCK1)
A-REC MAIN CONTROLLER & PULSE TRAIN TIMING-GENERATOR ICF27
(MONI)
(TSO)
TC A-REC CONTROLLER ICF22
A1, A2 S-REC CONTROLLER ICF30
(GOR)
(RCK2)
(RCK1)
S-REC MAIN CONTROLLER & PULSE TRAIN TIMING-GENERATOR ICF35
(MONI)
(TSO)
TC S-REC CONTROLLER ICF30
+V
-V
REGULATOR & GAIN ADJ ICD01 to ICD56 RV101 to RV156
A1, A2 A-REC DRIVER ICB01, B02
CTL A-REC DRIVER ICC28
DIGITAL CH A-REC DRIVER ICB04 to ICB27 ICC04 to ICC27
TC A-REC DRIVER ICB03
A1, A2 S-REC DRIVER ICB55, B56
CTL S-REC DRIVER ICC29
DIGITAL CH S-REC DRIVER ICB30 to ICB53 ICC30 to ICC53
TC S-REC DRIVER ICB54
(A1, A2) A-REC HEAD
(CTL) A-REC HEAD
(DIGITAL CH) A-REC HEAD
(TC) A-REC HEAD
(A1, A2) S-REC HEAD
(CTL) S-REC HEAD
(DIGITAL CH) S-REC HEAD
(TC) S-REC HEAD

Note: $\overline{XXX}$=XXX *
The mark * means negative active

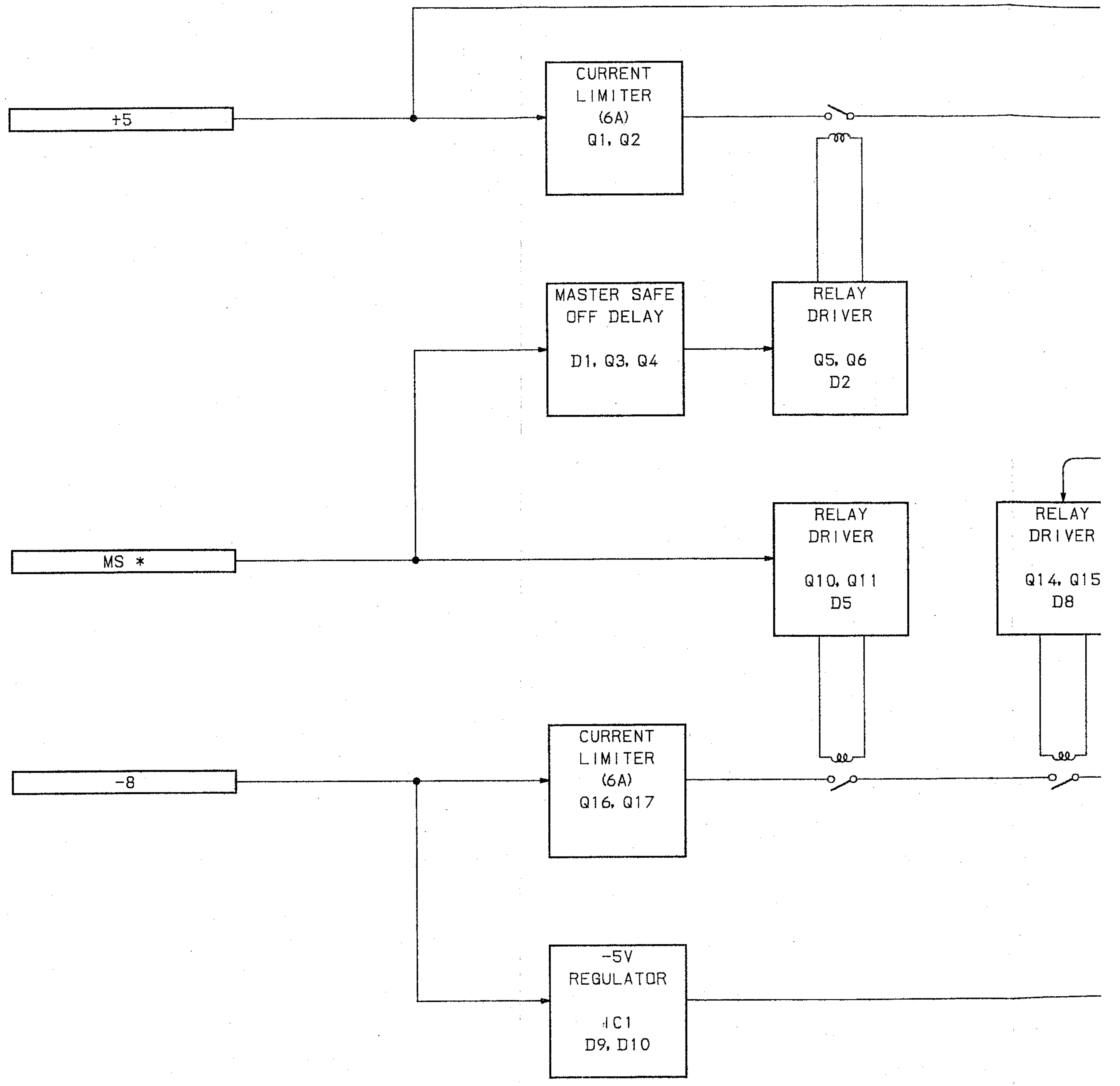
REC-5 BOARD BLOCK DIAGRAM
PCM-3348

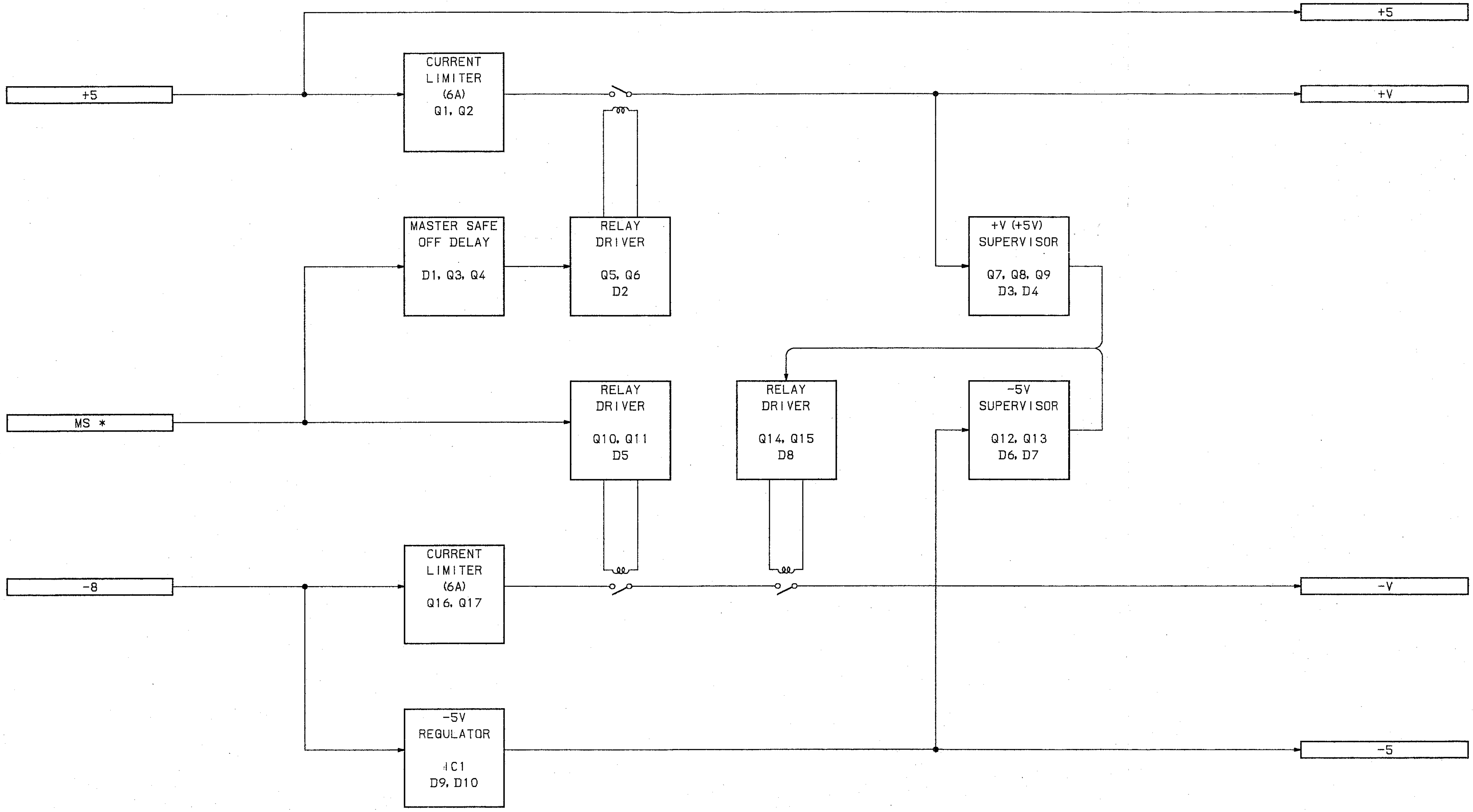
RG-23 BOARD

This board supplies the power of +5V, -5V and also that for the head drive, +V (+5V) and -V (-8V), to the REC-5 board.

In MASTER SAFE mode, +V and -V are cut by the relay. Then the power for the head drive is not sent to the REC-5 board, so that board is set in SAFE mode. To avoid excess current flow to the relay when the relay is ON and OFF, the CURRENT LIMITER of about 6A is furnished.

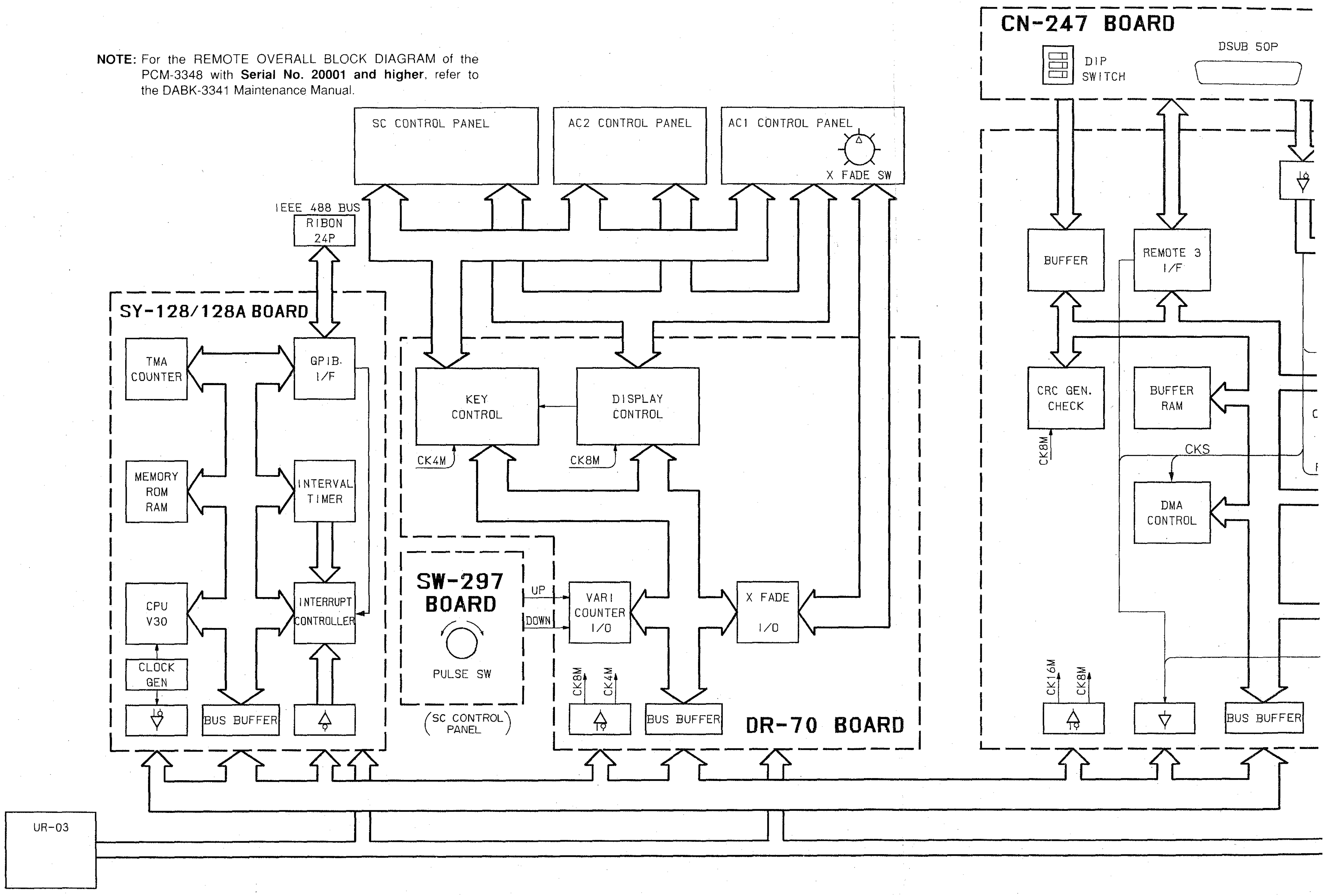
ON/OFF of +V and -V is controlled by the DELAY circuit when the MASTER SAFE is OFF and the monitoring circuit of +V because of the sequence for protecting the head driver IC.


+5
CURRENT LIMITER (6A) Q1, Q2
MASTER SAFE OFF DELAY D1, Q3, Q4
RELAY DRIVER Q5, Q6 D2
MS *
RELAY DRIVER Q10, Q11 D5
RELAY DRIVER Q14, Q15 D8
-8
CURRENT LIMITER (6A) Q16, Q17
-5V REGULATOR IC1 D9, D10


+5
CURRENT LIMITER (6A) Q1, Q2
+5
+V
MASTER SAFE OFF DELAY D1, Q3, Q4
RELAY DRIVER Q5, Q6 D2
+V (+5V) SUPERVISOR Q7, Q8, Q9 D3, D4
MS *
RELAY DRIVER Q10, Q11 D5
RELAY DRIVER Q14, Q15 D8
-5V SUPERVISOR Q12, Q13 D6, D7
-8
CURRENT LIMITER (6A) Q16, Q17
-V
-5V REGULATOR IC1 D9, D10
-5

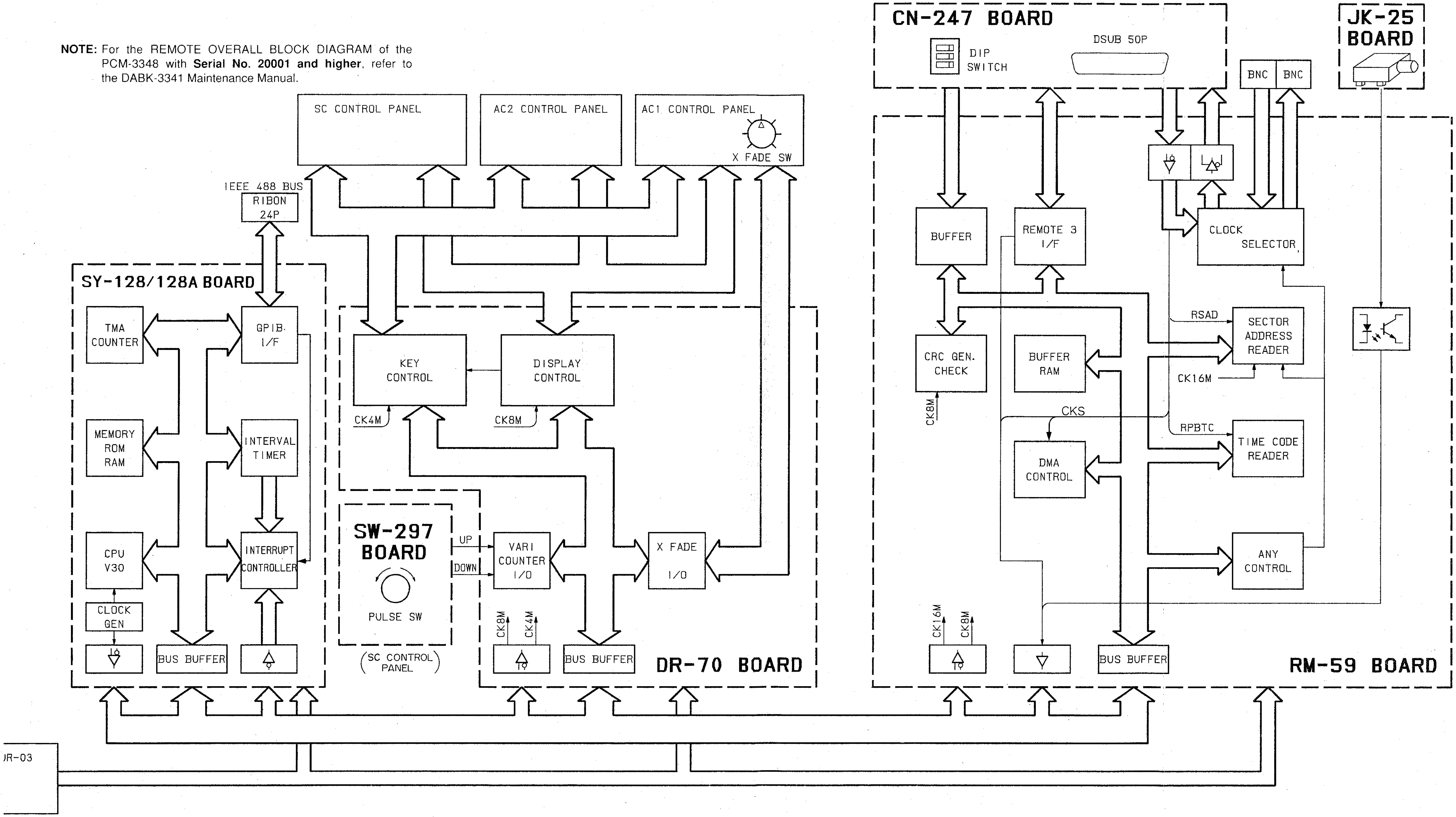
RG-23 BOARD BLOCK DIAGRAM
PCM-3348

NOTE: For the REMOTE OVERALL BLOCK DIAGRAM of the PCM-3348 with **Serial No. 20001 and higher**, refer to the DABK-3341 Maintenance Manual.


CN-247 BOARD
DIP SWITCH
DSUB 50P
SC CONTROL PANEL
AC2 CONTROL PANEL
AC1 CONTROL PANEL
X FADE SW
IEEE 488 BUS
RIBON 24P
SY-128/128A BOARD
TMA COUNTER
GPIB I/F
MEMORY ROM RAM
INTERVAL TIMER
CPU V30
INTERRUPT CONTROLLER
CLOCK GEN
BUS BUFFER
KEY CONTROL
DISPLAY CONTROL
CK4M
CK8M
SW-297 BOARD
PULSE SW
(SC CONTROL PANEL)
UP
DOWN
VARI COUNTER I/O
X FADE I/O
CK8M
CK4M
BUS BUFFER
DR-70 BOARD
BUFFER
REMOTE 3 I/F
CRC GEN. CHECK
BUFFER RAM
CK8M
CKS
DMA CONTROL
CK16M
CK8M
BUS BUFFER
UR-03

REM
PCM

NOTE: For the REMOTE OVERALL BLOCK DIAGRAM of the PCM-3348 with **Serial No. 20001 and higher**, refer to the DABK-3341 Maintenance Manual.


CN-247 BOARD
DIP SWITCH
DSUB 50P
JK-25 BOARD
BNC
BNC
SC CONTROL PANEL
AC2 CONTROL PANEL
AC1 CONTROL PANEL
X FADE SW
IEEE 488 BUS
RIBON 24P
SY-128/128A BOARD
TMA COUNTER
GPIB I/F
MEMORY ROM RAM
INTERVAL TIMER
CPU V30
INTERRUPT CONTROLLER
CLOCK GEN
BUS BUFFER
KEY CONTROL
DISPLAY CONTROL
CK4M
CK8M
SW-297 BOARD
PULSE SW
(SC CONTROL PANEL)
UP
DOWN
VARI COUNTER I/O
X FADE I/O
CK8M
CK4M
BUS BUFFER
DR-70 BOARD
BUFFER
REMOTE 3 I/F
CLOCK SELECTOR
RSAD
SECTOR ADDRESS READER
CRC GEN. CHECK
BUFFER RAM
CK16M
CK8M
CKS
RPBTC
TIME CODE READER
DMA CONTROL
ANY CONTROL
CK16M
CK8M
BUS BUFFER
RM-59 BOARD
JR-03

REMOTE OVERALL BLOCK DIAGRAM
PCM-3348

DR-70 BOARD

1. ADDRESS DEC

Decodes the address bus, and generates the chip select signals for the I/O and the memory on the DR-70 board

2. READY CONT

Generates the READY control signal when the CPU accesses the I/O memory on the DR-70 board.

3. VARI COUNTER I/O

Generates 8-bit binary data by counting the UP clock and DOWN clock of pulse switch for vari speed setting by the UP/DOWN counter. The counter value can be accessed by the CPU.

4. X FADE I/O

I/O port to read the data of the X FADE set switch.

5. DISPLAY CONTROL

Controls writing the displayed data in DISPLAY RAM, reading the display data, and also the dynamic display.
Function of each block of the DISPLAY CONTROL is as follows:

ADRS GEN
Generates the read address of DISPLAY RAM and the display scanning signal for the dynamic display.

ADDRESS SELECTOR
Selects the address of DISPLAY RAM sent from the ADRS GEN and the address bus of the CPU in the timing of 1/2 period of 1 MHz.

DISP RAM WR/RD CONTROL
Controls the timing of the CPU to access the DISPLAY RAM.

DISPLAY RAM
Stores the display data (2 K byte).

DISP DATA LATCH
Latches the display data read from the DISPLAY RAM.

6. KEY CONTROL

Checks ON/OFF of the keys on the SC PANEL, AC1 PANEL and AC2 PANEL, and generates KYIN* when the condition is changed.

Each block of KEY CONTROL is explained below:

Z80
LOCAL CPU for KEY CONTROL.

CPU COMMAND GEN
Generates the signal for Z80 CPU to access the I/O and memory.

ADRS DEC
Obtains the chip select signal for the I/O and memory connected to Z80 CPU by decoding the address bus.

ROM
Uses an EPROM 128 Kbit.

RAM
Uses a 16-bit static RAM.

KEY SORT TIMING
Controls the timing for detecting the KEY ON/OFF. Interruption signal is sent to the Z80 CPU in the detected timing.

SORT ADRS READ
Z80 CPU reads the address of the KEY detection from this I/O port by the interruption signal.

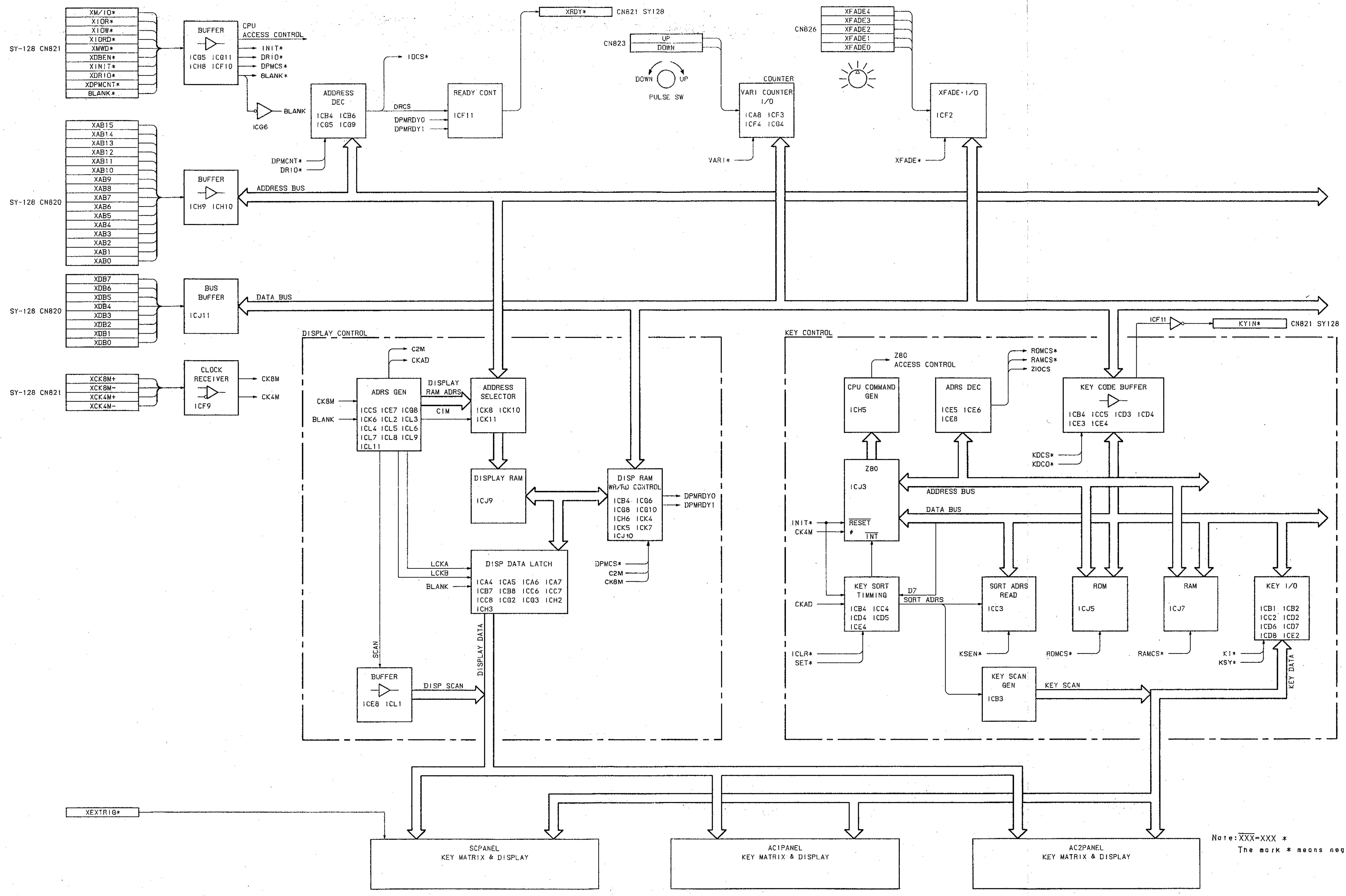
KEY SCAN GEN
Obtains the KEY SCAN signal by decoding the KEY detection address (SORT ADRS).

KEY I/O
Composed of 6 read ports, and reads the KEY ON/OFF condition from these ports.

KEY CODE BUFFER
Functions as the read port for the system main CPU, and as write port for the Z80 CPU. The Z80 CPU sets it by the KEY ON/OFF conditions and 1 WORD (2 BYTE) code.
A KEY IN* signal is generated.

7. CLOCK RECEIVER

Balanced receiver of 8 MHz and 4 MHz clocks.


SY-128 CN821
XM/IO*
XIOR*
XIOW*
XIORD*
XMWD*
XDBEN*
XINIT*
XDRIO*
XDPMCNT*
BLANK*
BUFFER
ICG5 ICG11
ICH8 ICF10
CPU
ACCESS CONTROL
INIT*
DRIO*
DPMCS*
BLANK*
ICG6
BLANK
SY-128 CN820
XAB15
XAB14
XAB13
XAB12
XAB11
XAB10
XAB9
XAB8
XAB7
XAB6
XAB5
XAB4
XAB3
XAB2
XAB1
XAB0
BUFFER
ICH9 ICH10
ADDRESS BUS
SY-128 CN820
XDB7
XDB6
XDB5
XDB4
XDB3
XDB2
XDB1
XDB0
BUS
BUFFER
ICJ11
DATA BUS
SY-128 CN821
XCK8M+
XCK8M-
XCK4M+
XCK4M-
CLOCK
RECEIVER
ICF9
CK8M
CK4M
IOCS*
ADDRESS
DEC
ICB4 ICB6
ICG5 ICG9
DPMCNT*
DRIO*
DRCS
DPMRDY0
DPMRDY1
READY CONT
ICF11
XRDY*
CN821 SY128
CN823
UP
DOWN
DOWN
UP
PULSE SW
COUNTER
VARI COUNTER
I/O
ICA8 ICF3
ICF4 ICG4
VARI*
CN826
XFADE4
XFADE3
XFADE2
XFADE1
XFADE0
XFADE·I/O
ICF2
XFADE*
DISPLAY CONTROL
C2M
CKAD
CK8M
BLANK
ADRS GEN
ICC5 ICE7 ICG8
ICK6 ICL2 ICL3
ICL4 ICL5 ICL6
ICL7 ICL8 ICL9
ICL11
DISPLAY
RAM ADRS
C1M
ADDRESS
SELECTOR
ICK8 ICK10
ICK11
DISPLAY RAM
ICJ9
DISP RAM
WR/RD CONTROL
ICB4 ICG6
ICG8 ICG10
ICH6 ICK4
ICK5 ICK7
ICJ10
DPMRDY0
DPMRDY1
DPMCS*
C2M
CK8M
LCKA
LCKB
BLANK
DISP DATA LATCH
ICA4 ICA5 ICA6 ICA7
ICB7 ICB8 ICC6 ICC7
ICC8 ICG2 ICG3 ICH2
ICH3
SCAN
BUFFER
ICE8 ICL1
DISP SCAN
DISPLAY DATA
KEY CONTROL
Z80
ACCESS CONTROL
CPU COMMAND
GEN
ICH5
ADRS DEC
ICE5 ICE6
ICE8
ROMCS*
RAMCS*
ZIOCS
ICF11
KYIN*
CN821 SY128
KEY CODE BUFFER
ICB4 ICC5 ICD3 ICD4
ICE3 ICE4
KDCS*
KDC0*
Z80
ICJ3
RESET
φ
INT
ADDRESS BUS
DATA BUS
INIT*
CK4M
CKAD
KEY SORT
TIMMING
ICB4 ICC4
ICD4 ICD5
ICE4
D7
SORT ADRS
ICLR*
SET*
SORT ADRS
READ
ICC3
KSEN*
ROM
ICJ5
ROMCS*
RAM
ICJ7
RAMCS*
KEY I/O
ICB1 ICB2
ICC2 ICD2
ICD6 ICD7
ICD8 ICE2
KI*
KSY*
KEY DATA
KEY SCAN
GEN
ICB3
KEY SCAN
XEXTRIG*
SCPANEL
KEY MATRIX & DISPLAY
AC1PANEL
KEY MATRIX & DISPLAY
AC2PANEL
KEY MATRIX & DISPLAY

Note: $\overline{\text{XXX}}$=XXX *
The mark * means negative active.

DR-70 BOARD BLOCK DIAGRAM

PCM-3348

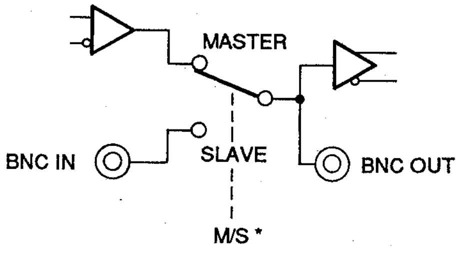
RM-59 BOARD

1. ADRS-DEC
Generates the chip select signal of the I/O and memory on the RM-59 board by decoding the address bus.

2. DIP-SW PORT
I/O port to read the setting data of the 12-bit dip switches.

3. ANY-CONTROL
I/O port which generates the control signal of the MASTER /SLAVE CLOCK SELECTOR block, SECTOR ADRS BI ø #DEC block and SECTOR READER block.

4. MATER/SLAVE CLOCK SELECTOR
Switching by the master and slave signal M/S* sent from the ANY-CONTROL block as shown below.



5. TAPE DIRECTION READ
Read port for the tape running direction.

6. TIME CODE READ
Uses CX7912A as a time code reader. This generates an interruption signal ITCRD when reading of the time code has been completed, and controls the time code data access timing of the CPU.

7. SECTOR ADRS BI ø DEC
Demodulates the by-phase modulated sector address, and generates the serial data.

8. SECTOR READER
Converts the sector address data which has been converted into the serial data to 32-bit (4 bytes) parallel data using four 8-bit shift registers. Then it can be accessed by the CPU. 4 byte parallel data is locked by the SD LOCK* signal.

9. DMA CONTROL
Uses the DMA controller CXQ71071. The DAM channel 0 is used for the transmission side of the REMOTE 3 communication, and the DMA channel 1 for the reception side.

10. ADDRESS DATA CONTROL
Controls the ADDRESS BUS and DATA bus against the DMA controller. This also controls the RD/WR to BUFFER RAM.

11. TX TIMING
Controls the timing of the transmission in REMOTE 3 communication.
This generates the transmission request signal to the DMA controller synchronizing with the sector clock. This also generates the TSTB (Transmission Strobe) signal (125 kHz clock), and controls READY of the DMA controller.

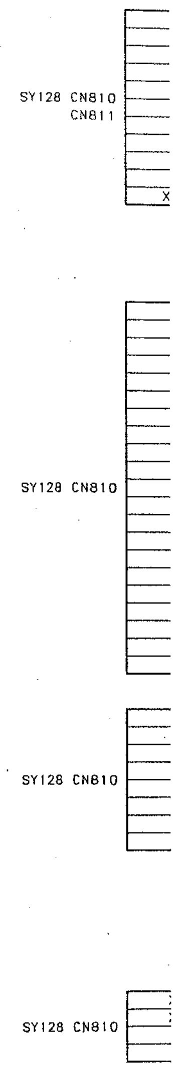
12. RX TIMING
Controls the timing of the reception side in the REMOTE 3 communication. This generates the reception request signal to the DMA controller using the reception strobe signal RSTB. This also generates the write signal of BUFFER RAM, and the data strobe signal DSTB which latches the received data. This controls READY of the DMA controller.

13. BUFFER RAM
This is used in the REMOTE 3 communication. The transmission data and the reception data are written here.

14. CRC GEN/CHECK
When the communication data is written in the BUFFER RAM, this block generates the CRC code of the data, and checks it. The CPU can access the operation result.

15. REMOTE 3 I/F
This is composed of the balanced driver and balanced receiver, and functions as the REMOTE 3 bus interface.

16. CLOCK RECEIVER
Balanced receiver of 16 MHz and 8 MHz.



SY-128/128A BOARD

1. WAIT TIMING

When the CPU accesses the external IO, READY is set to inactive for the period of the CPU bus cycle T2, and the wait state is generated after the bus cycle T3.

2. READY CONTROL

READY is set to active according to the data of the I/O and memory accessed by the CPU.

3. CLOCK GEN

This is a crystal oscillator of 16 MHz. The oscillated signal is divided, and 8 MHz is supplied to the CPU.
This makes the READY control signal and the RESET signal synchronize with the CPU clock and supply to the CPU.

4. CPU

Main CPU of the system. CMOS 16 bit microprocessor, 8 MHz clock.

5. ADRS LATCH

As input and output of the address and data are time-shared, the address is latched in the timing of ASTB.

6. TIMING GEN

Generates MRD*, MWR*, IOR* and IOW*.

7. BUS TEST

The data bus buffer is set to high impedance by short-circuiting the JR2. Then the dummy instruction code FDH is read by the CPU, and the address increment is performed.

8. ADRS DEC

The address bus is decoded, and the chip select signal of the memory and I/O is generated.
WAITCNT and NOWATI signals are generated by the generated chip select signal, and are sent to 1 WAIT TIMING block.

9. RAM

This uses two (WORD) 256 k bit high-speed CMOS static RAMs.
After C000H, they are overlapped with REMOTE 3 buffer RAM and DISPLAY RAM so that they are not used.

10. ROM

This uses 2 (words) 512 k bit EPROMs.

11. BACK UP CONT

Controls to keep the RAM data when the power is down.

12. INTERVAL TIMER

Using CXQ71054, 4 MHz clock supplied from the CLOCK GEN block is divided to obtain the system clock of RX116 is obtained. It is also used as the 1/100 divider for the sector clock and as the down counter.

13. GPIB I/F

IEEE-488 BUS interface. Uses TMS9914A.

14. TMA COUNTER

24-bit up/down counter of the TACH pulse.
Counted data is read and preset by the CPU.

15. SIGNAL CONTROL

Generates the software reset signal INT*, and display blanking control signal BLANK*.

16. ACCESS ERROR

Generates an access error signal when ineffective I/O or memory whose CPU is not defined is accessed.

17. HOLD REQ. LATCH

An external HLDRQ signal is synchronized with the CPU clock of 8 MHz.

18. CLOCK DRIVER

Balanced driver of 16 MHz, 8 MHz and 4 MHz clock of the CLOCK GEN.

19. EXT ADRS LATCH

The address is latched in the timing of ASTB for an external address bus.

20. BUS BUFFER

Bi-directional bus transceiver. This is connected to the data bus of the CPU. It is composed of two blocks, internal data bus and external data bus.

21. INTERRUPT CONTROLLER

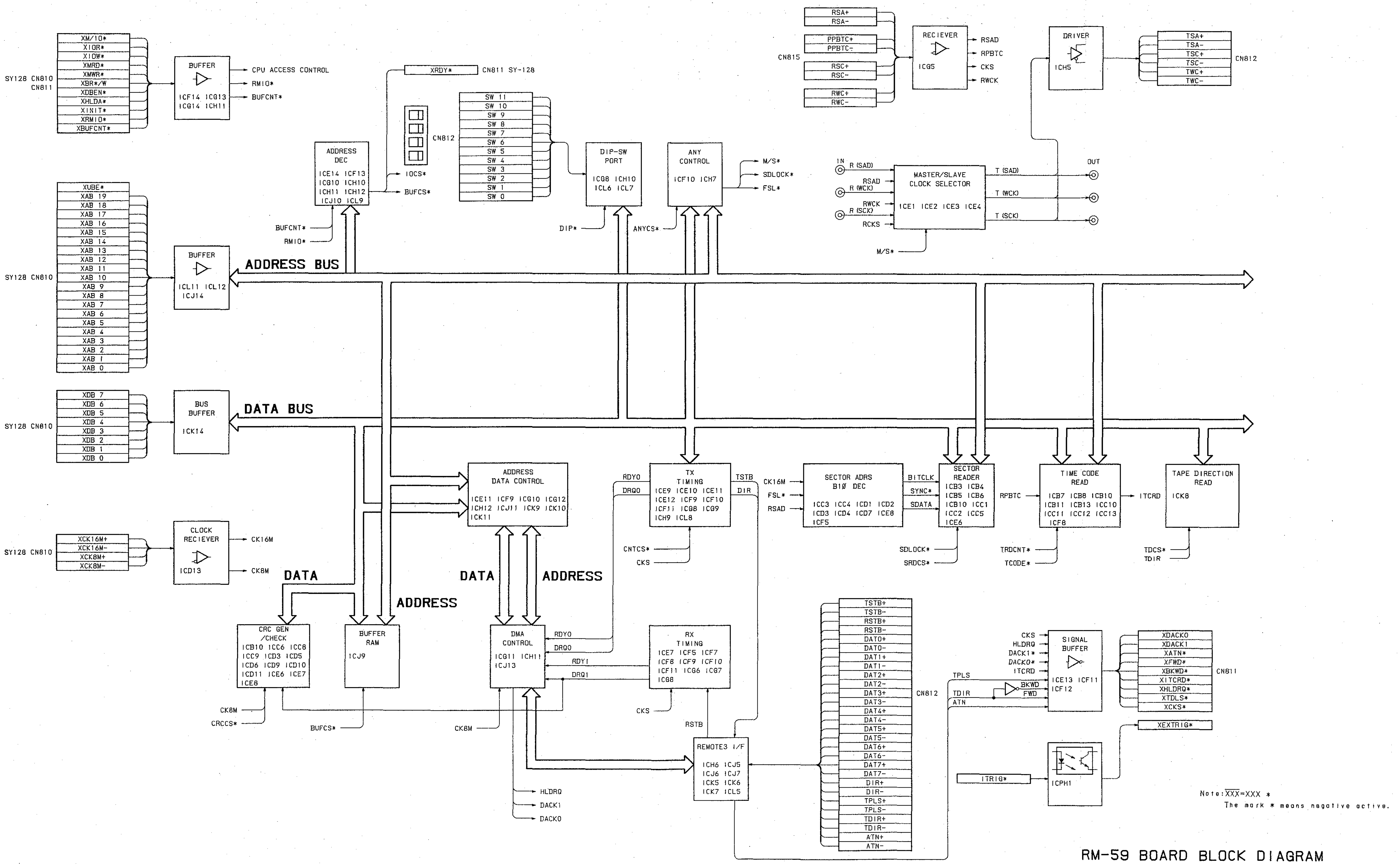
This uses 2 chips of CXQ71059 in expansion mode.
The interruption is described below.

CKSYS : Activates the RX116 system timer
CKUSR : Generated when the center clock is counted by the count numbers to have been set.
CK100 : Generated every time the center clock is counted by 100. This detects that the power of the tape recorder is turned on and it is connected using the REMOTE 3.
DACK1* : Generated when reception of the command data from the tape recorder completes in the communication using REMOTE 3.
DACKO* : Generated when transmission of the command data from the tape recorder to the remote unit completes in the communication using REMOTE 3.
ATN : Interrupt signal from the tape recorder to the remote unit. (This is generated when the status of the tape recorder is changed.)
KYRQ : Generated when the KEY is set to ON or released.
GPINT : Interrupt signal generated in the IEEE-488 BUS communication.
FWD : Generated when the direction of the tape transportation is changed to FORWARD.
BKWD : Generated when the direction of the tape transportation is changed to BACKWARD.
ITCRD : Generated when the time code data is finished to be read.
IAERR : Generated when the CPU accesses the ineffective I/O or MEMORY.

SECTION B
SCHEMATICS & MOUNTING DIAGRAMS

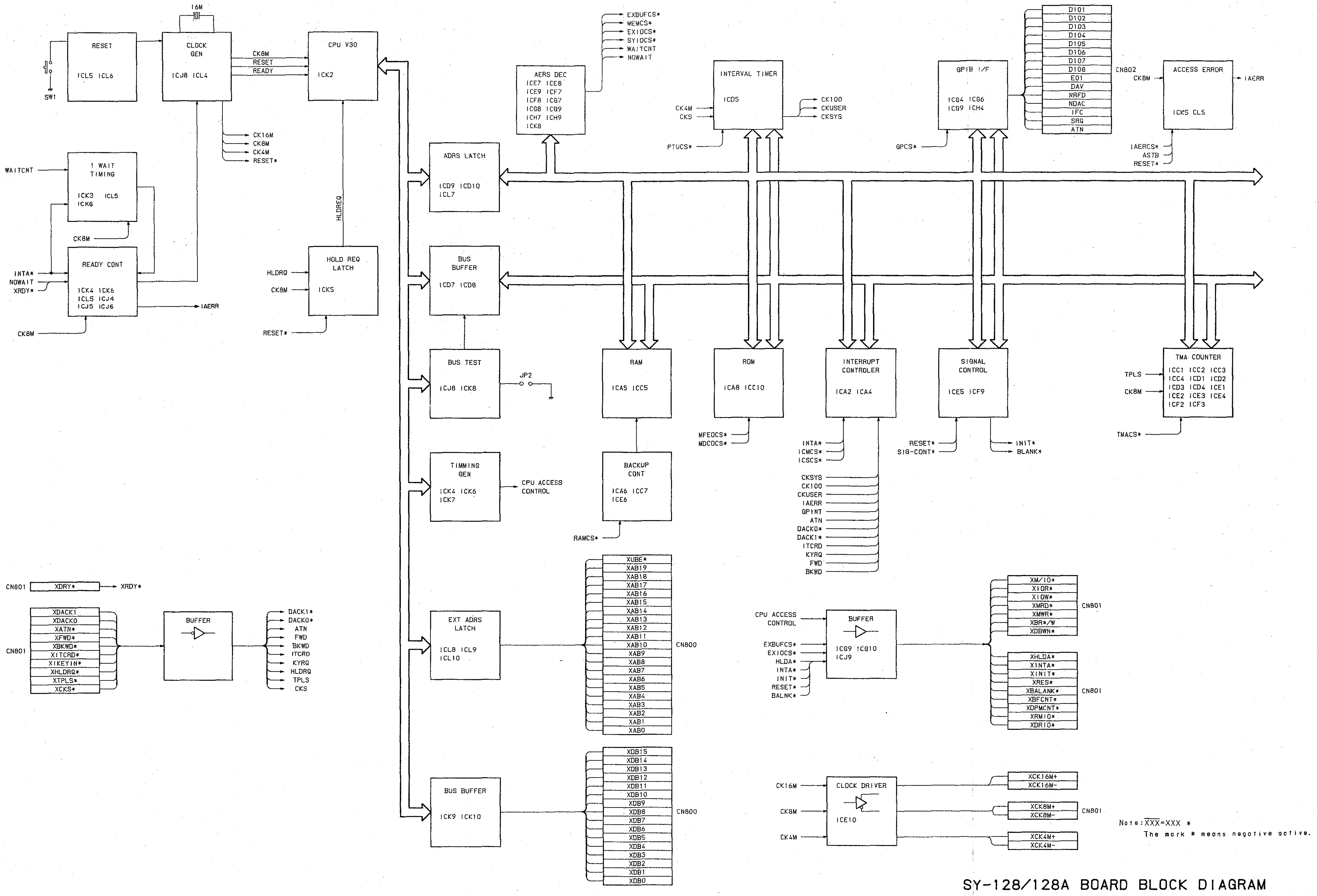
Note: For the MOUNTING DIAGRAM and SCHEMATIC DIAGRAM of the following boards, refer to "Section 5, CIRCUIT BOARD DIAGRAMS" and "Section 6, SCHEMATIC DIAGRAMS" of the Maintenance manual for the DABK-3341.

ED-26 BOARD
ED-27 BOARD
TC-68 BOARD
TRC-1A BOARD


SY128 CN810
CN811
XM/IO*
XIOR*
XIOW*
XMRD*
XMWR*
XBR*/W
XDBEN*
XHLDA*
XINIT*
XRMIO*
XBUFCNT*
BUFFER
ICF14 ICG13
ICG14 ICH11
CPU ACCESS CONTROL
RMIO*
BUFCNT*
XRDY*
CN811 SY-128
CN812
ADDRESS DEC
ICE14 ICF13
ICG10 ICH10
ICH11 ICH12
ICJ10 ICL9
IOCS*
BUFCS*
BUFCNT*
RMIO*
SW 11
SW 10
SW 9
SW 8
SW 7
SW 6
SW 5
SW 4
SW 3
SW 2
SW 1
SW 0
DIP-SW PORT
ICG8 ICH10
ICL6 ICL7
DIP*
ANY CONTROL
ICF10 ICH7
ANYCS*
M/S*
SDLOCK*
FSL*
RSA+
RSA-
PPBTC+
PPBTC-
RSC+
RSC-
RWC+
RWC-
CN815
RECIEVER
ICG5
RSAD
RPBTC
CKS
RWCK
DRIVER
ICH5
TSA+
TSA-
TSC+
TSC-
TWC+
TWC-
CN812
IN
R (SAD)
RSAD
R (WCK)
RWCK
R (SCK)
RCKS
MASTER/SLAVE CLOCK SELECTOR
ICE1 ICE2 ICE3 ICE4
T (SAD)
T (WCK)
T (SCK)
OUT
M/S*
XUBE*
XAB 19
XAB 18
XAB 17
XAB 16
XAB 15
XAB 14
XAB 13
XAB 12
XAB 11
XAB 10
XAB 9
XAB 8
XAB 7
XAB 6
XAB 5
XAB 4
XAB 3
XAB 2
XAB 1
XAB 0
SY128 CN810
BUFFER
ICL11 ICL12
ICJ14
ADDRESS BUS
XDB 7
XDB 6
XDB 5
XDB 4
XDB 3
XDB 2
XDB 1
XDB 0
SY128 CN810
BUS BUFFER
ICK14
DATA BUS
SY128 CN810
XCK16M+
XCK16M-
XCK8M+
XCK8M-
CLOCK RECIEVER
ICD13
CK16M
CK8M
DATA
ADDRESS
ADDRESS DATA CONTROL
ICE11 ICF9 ICG10 ICG12
ICH12 ICJ11 ICK9 ICK10
ICK11
DATA
ADDRESS
RDY0
DRQ0
TX TIMING
ICE9 ICE10 ICE11
ICE12 ICF9 ICF10
ICF11 ICG8 ICG9
ICH9 ICL8
TSTB
DIR
CNTCS*
CKS
CK16M
FSL*
RSAD
SECTOR ADRS BIØ DEC
ICC3 ICC4 ICD1 ICD2
ICD3 ICD4 ICD7 ICE8
ICF5
BITCLK
SYNC*
SDATA
SECTOR READER
ICB3 ICB4
ICB5 ICB6
ICB10 ICC1
ICC2 ICC5
ICE6
SDLOCK*
SRDCS*
RPBTC
TIME CODE READ
ICB7 ICB8 ICB10
ICB11 ICB13 ICC10
ICC11 ICC12 ICC13
ICF8
TRDCNT*
TCODE*
ITCRD
TAPE DIRECTION READ
ICK8
TDCS*
TDIR
CRC GEN /CHECK
ICB10 ICC6 ICC8
ICC9 ICD3 ICD5
ICD6 ICD9 ICD10
ICD11 ICE6 ICE7
ICE8
CK8M
CRCCS*
BUFFER RAM
ICJ9
BUFCS*
DMA CONTROL
ICG11 ICH11
ICJ13
CK8M
RDY0
DRQ0
RDY1
DRQ1
RX TIMING
ICE7 ICF5 ICF7
ICF8 ICF9 ICF10
ICF11 ICG6 ICG7
ICG8
CKS
RSTB
REMOTE3 I/F
ICH6 ICJ5
ICJ6 ICJ7
ICK5 ICK6
ICK7 ICL5
HLDRQ
DACK1
DACK0
TSTB+
TSTB-
RSTB+
RSTB-
DAT0+
DAT0-
DAT1+
DAT1-
DAT2+
DAT2-
DAT3+
DAT3-
DAT4+
DAT4-
DAT5+
DAT5-
DAT6+
DAT6-
DAT7+
DAT7-
DIR+
DIR-
TPLS+
TPLS-
TDIR+
TDIR-
ATN+
ATN-
CN812
TPLS
TDIR
ATN
CKS
HLDRQ
DACK1*
DACK0*
ITCRD
BKWD
FWD
SIGNAL BUFFER
ICE13 ICF11
ICF12
XDACK0
XDACK1
XATN*
XFWD*
XBKWD*
XITCRD*
XHLDRQ*
XTDLS*
XCKS*
CN811
XEXTRIG*
ITRIG*
ICPH1

Note: $\overline{XXX}$=XXX *
The mark * means negative active.

RM-59 BOARD BLOCK DIAGRAM
PCM-3348

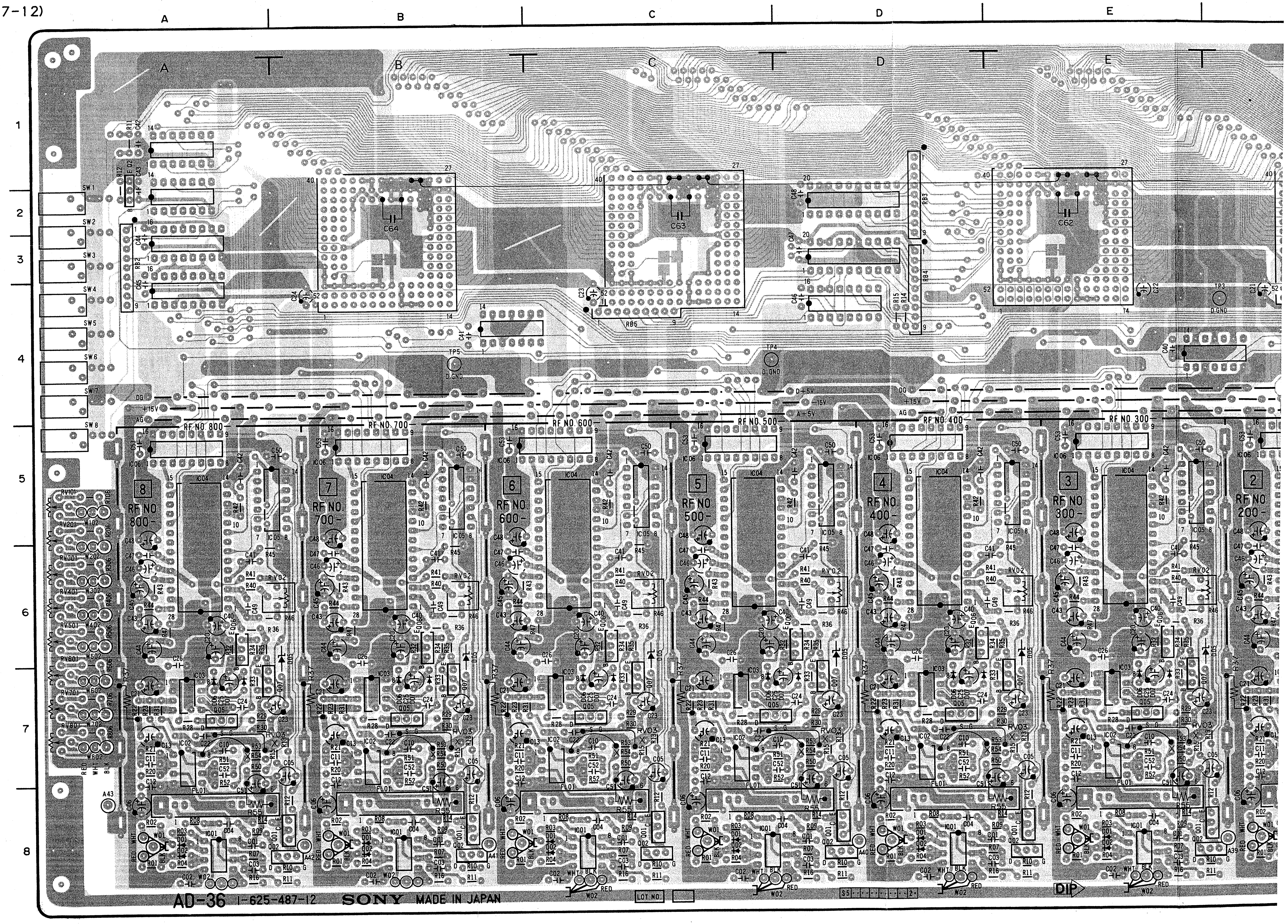

RESET
ICL5 ICL6
SW1
16M
CLOCK GEN
ICJ8 ICL4
CK8M
RESET
READY
CPU V30
ICK2
CK16M
CK8M
CK4M
RESET*
1 WAIT TIMING
ICK3 ICL5
ICK6
WAITCNT
CK8M
READY CONT
ICK4 ICK6
ICL5 ICJ4
ICJ5 ICJ6
INTA*
NOWAIT
XRDY*
IAERR
CK8M
HLDREQ
HOLD REQ LATCH
ICK5
HLDRQ
CK8M
RESET*
ADRS LATCH
ICD9 ICD10
ICL7
BUS BUFFER
ICD7 ICD8
BUS TEST
ICJ8 ICK8
JP2
TIMMING GEN
ICK4 ICK6
ICK7
CPU ACCESS CONTROL
EXT ADRS LATCH
ICL8 ICL9
ICL10
BUS BUFFER
ICK9 ICK10
AERS DEC
ICE7 ICE8
ICE9 ICF7
ICF8 ICG7
ICG8 ICG9
ICH7 ICH9
ICK8
EXBUFCS*
MEMCS*
EXIOCS*
SYIOCS*
WAITCNT
NOWAIT
INTERVAL TIMER
ICD5
CK4M
CKS
PTUCS*
CK100
CKUSER
CKSYS
GPIB I/F
ICG4 ICG6
ICG9 ICH4
GPCS*
DIO1
DIO2
DIO3
DIO4
DIO5
DIO6
DIO7
DIO8
EOI
DAV
NRFD
NDAC
IFC
SRQ
ATN
CN802
ACCESS ERROR
ICK5 CL5
CK8M
IAERR
IAERCS*
ASTB
RESET*
RAM
ICA5 ICC5
BACKUP CONT
ICA6 ICC7
ICE6
RAMCS*
ROM
ICA8 ICC10
MFEOCS*
MDCOCS*
INTERRUPT CONTROLER
ICA2 ICA4
INTA*
ICMCS*
ICSCS*
CKSYS
CK100
CKUSER
IAERR
GPINT
ATN
DACK0*
DACK1*
ITCRD
KYRQ
FWD
BKWD
SIGNAL CONTROL
ICE5 ICF9
RESET*
SIG-CONT*
INIT*
BLANK*
TMA COUNTER
ICC1 ICC2 ICC3
ICC4 ICD1 ICD2
ICD3 ICD4 ICE1
ICE2 ICE3 ICE4
ICF2 ICF3
TPLS
CK8M
TMACS*
CN801
XDRY*
XRDY*
XDACK1
XDACK0
XATN*
XFWD*
XBKWD*
XITCRD*
XIKEYIN*
XHLDRQ*
XTPLS*
XCKS*
BUFFER
DACK1*
DACK0*
ATN
FWD
BKWD
ITCRD
KYRQ
HLDRQ
TPLS
CKS
XUBE*
XAB19
XAB18
XAB17
XAB16
XAB15
XAB14
XAB13
XAB12
XAB11
XAB10
XAB9
XAB8
XAB7
XAB6
XAB5
XAB4
XAB3
XAB2
XAB1
XAB0
CN800
XDB15
XDB14
XDB13
XDB12
XDB11
XDB10
XDB9
XDB8
XDB7
XDB6
XDB5
XDB4
XDB3
XDB2
XDB1
XDB0
CN800
CPU ACCESS CONTROL
EXBUFCS*
EXIOCS*
HLDA*
INTA*
INIT*
RESET*
BALNK*
BUFFER
ICG9 ICG10
ICJ9
XM/IO*
XIOR*
XIOW*
XMRD*
XMWR*
XBR*/W
XDBWN*
CN801
XHLDA*
XINTA*
XINIT*
XRES*
XBALANK*
XBFCNT*
XDPMCNT*
XRMIO*
XDRIO*
CN801
CK16M
CK8M
CK4M
CLOCK DRIVER
ICE10
XCK16M+
XCK16M-
XCK8M+
XCK8M-
XCK4M+
XCK4M-
CN801

Note: $\overline{XXX}$=XXX *
The mark * means negative active.

SY-128/128A BOARD BLOCK DIAGRAM
PCM-3348

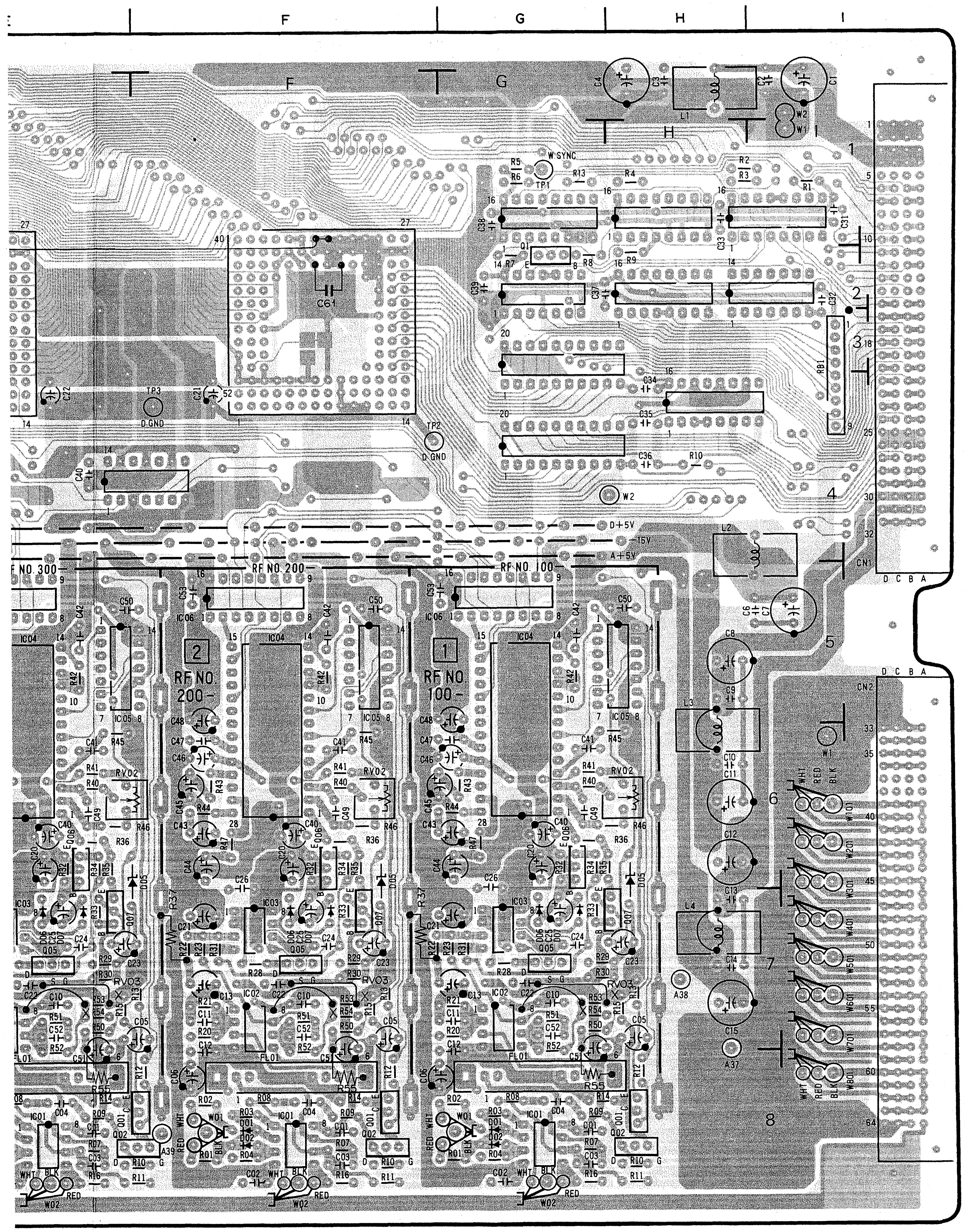
AD-36 BOARD (1-625-487-12)
Component Side

S/N; 10001 TO 10400


A
B
C
D
E
1
2
3
4
5
6
7
8
SW1
SW2
SW3
SW4
SW5
SW6
SW7
SW8
C64
C63
C62
TP5
TP4
TP3
D.GND
+15V
-15V
D+5V
A+5V
DG
AG
RF NO 800
RF NO 700
RF NO 600
RF NO 500
RF NO 400
RF NO 300
8
7
6
5
4
3
2
RF NO 800-
RF NO 700-
RF NO 600-
RF NO 500-
RF NO 400-
RF NO 300-
RF NO 200-
IC04
IC05
IC06
IC03
IC02
IC01
FL01
RV01
RV02
RV03
W01
W02
RED
WHT
BLK
A43
A42
A41
A40
A39
AD-36 1-625-487-12
SONY
MADE IN JAPAN
LOT NO.
DIP

■ SOLDER SIDE PATTERN

CARD RACK AD-36 BOARD

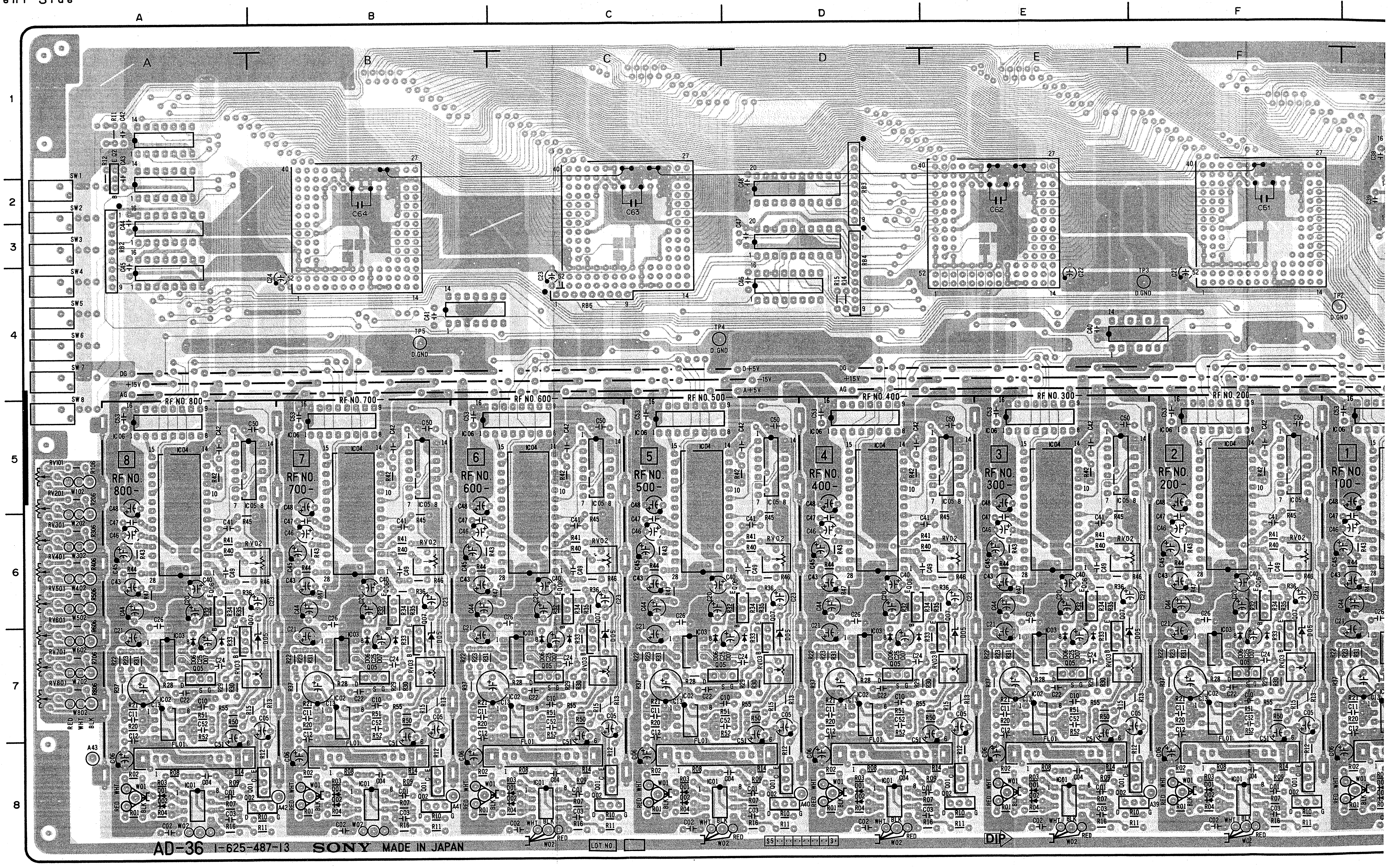


Applied Serial No. 10001 to 10400	
Jumpers that have been soldered.	ICC2-33, 34 — ICB2-30, 31 ICE2-33, 34 — ICC2-30, 31 ICF2-33, 34 — ICE2-30, 31
Parts marked with ■ that have been installed on the solder side.	■ C61, ■ C62, ■ C63, ■ C64

Applied Serial No. up to 10312	
Jumpers that have been soldered or cut.	R154 ⇸ R153 • • • • • • R854 ⇸ R853 R115 ⇸ R153 • • • • • • R815 ⇸ R853 IC102-8 — R153 • • • • • • IC802-8 — R853 C122 — R153 • • • • • • C822 — R853
Parts marked with ■ that have been installed on the solder side.	■ R137, ■ R237, • • • , ■ R837 ■ R155, ■ R255, • • • , ■ R855
Parts that have been added.	RV103, RV203, • • • , RV803
Parts that have been deleted.	R153, R253, • • • , R853 R154, R254, • • • , R854

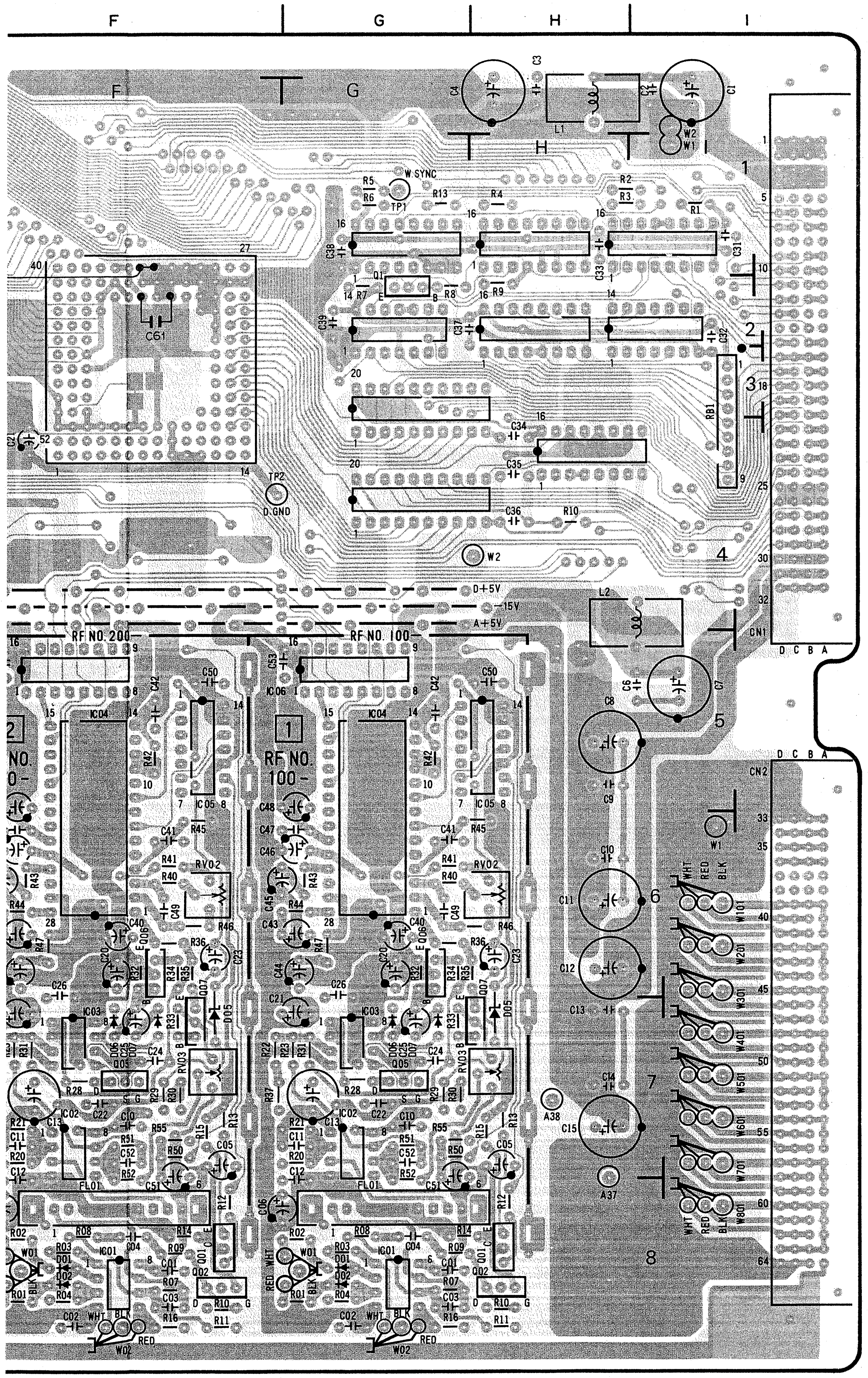
CN1	I-4
CN2	I-6
D101	G-8
D102	G-8
D105	H-7
D106	G-7
D107	G-7
D201	F-8
D202	F-8
D205	F-7
D206	F-7
D207	F-7
D301	E-8
D302	E-8
D305	F-7
D306	E-7
D307	E-7
D401	D-8
D402	D-8
D405	E-7
D406	D-7
D407	D-7
D501	C-8
D502	C-8
D505	D-7
D506	C-7
D507	D-7
D601	C-8
D602	C-8
D605	C-7
D606	C-7
D607	C-7
D701	B-8
D702	B-8
D705	B-7
D706	B-7
D707	B-7
D801	A-8
D802	A-8
D805	B-7
D806	A-7
D807	A-7
FL101	G-8
FL201	F-8
FL301	E-8
FL401	D-8
FL501	C-8
FL601	C-8
FL701	B-8
FL801	A-8
IC101	G-8
IC102	G-7
IC103	G-7
IC104	G-5
IC105	H-5
IC106	G-5
IC201	F-8
IC202	F-7
IC203	F-7
IC204	F-5
IC205	F-5
IC206	F-5
IC301	E-8
IC302	E-7
IC303	E-7
IC304	E-5
IC305	E-5
IC306	E-5
IC401	D-8
IC402	D-7
IC403	D-7
IC404	D-5
IC405	E-5
IC406	D-5
IC501	C-8
IC502	C-7
IC503	C-7
IC504	C-5
IC505	D-5
IC506	C-5
IC601	C-8
IC602	C-7
IC603	C-7
IC604	C-5
IC605	C-5
IC606	C-5
IC701	B-8
IC702	B-7
IC703	B-7
IC704	B-5
IC705	B-5
IC706	B-5
IC801	A-8
IC802	A-7
IC803	A-7
IC804	A-5
IC805	B-5
IC806	A-5
ICA1	A-1
ICA2	A-2
ICA3	A-3
ICA4	A-4
ICB2	B-2
ICB4	B-4
ICC2	C-2
ICD2	D-2
ICD3	D-3
ICD4	D-4
ICE2	E-2
ICF2	F-2
ICF4	F-4
ICG1	G-1
ICG2	G-2
ICG3	G-3
ICG4	G-4
ICH1	H-1
ICH2	H-2
ICH4	H-4
ICI1	I-1
ICI2	I-2
Q1	G-2
Q2	A-1
Q101	H-8
Q102	H-8
Q105	G-7
Q106	G-6
Q201	F-8
Q202	F-8
Q205	F-7
Q206	F-6
Q207	F-7
Q301	F-8
Q302	F-8
Q305	E-7
Q306	E-6
Q307	E-7
Q401	E-8
Q402	E-8
Q405	D-7
Q406	D-6
Q407	E-7
Q501	D-8
Q502	D-8
Q505	C-7
Q506	D-6
Q507	D-7
Q601	C-8
Q602	C-8
Q605	C-7
Q606	C-6
Q607	C-7
Q701	B-8
Q702	B-8
Q705	B-7
Q706	B-6
Q707	B-7
Q801	B-8
Q802	B-8
Q805	A-7
Q806	A-6
Q807	A-7
RB1	I-4
RB2	A-3
RB3	D-2
RB4	D-4
RV101	A-5
RV102	H-6
RV103	H-7
RV201	A-5
RV202	F-6
RV203	F-7
RV301	A-6
RV302	E-6
RV303	E-7
RV401	A-6
RV402	E-6
RV403	E-7
RV501	A-6
RV502	D-6
RV503	D-7
RV601	A-7
RV602	C-6
RV603	C-7
RV701	A-7
RV702	B-6
RV703	B-7
RV801	A-7
RV802	B-6
RV803	B-7
SW1	A-2
SW2	A-2
SW3	A-3
SW4	A-4
SW5	A-4
SW6	A-4
SW7	A-4
SW8	A-5
TP1	G-1
TP2	F-4
TP3	F-4
TP4	C-4
TP5	B-4

AD-36 BOARD (1-625-487-13) S/N; 10401 AND HIGHER
Component Side


A
B
C
D
E
F
1
2
3
4
5
6
7
8
SW1
SW2
SW3
SW4
SW5
SW6
SW7
SW8
C64
C63
C62
C61
RB2
RB3
RB4
RB6
TP2
TP3
TP4
TP5
D.GND
DG
+15V
AG
D+5V
-15V
A+5V
RF NO. 800
RF NO. 700
RF NO. 600
RF NO. 500
RF NO. 400
RF NO. 300
RF NO. 200
RF NO. 100
8
7
6
5
4
3
2
1
RV101
RV201
RV301
RV401
RV501
RV601
RV701
RV801
W102
W202
W302
W402
W502
W602
W702
W802
IC01
IC02
IC03
IC04
IC05
IC06
RV02
RV03
FL01
RED
WHT
BLK
A39
A40
A41
A42
A43
AD-36 1-625-487-13
SONY MADE IN JAPAN
LOT NO.
DIP

■ SOLDER SIDE PATTERN
▨ COMPONENT SIDE PATTERN

CARD RACK AD-36 BOARD



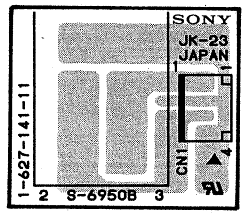
CN1	I-4
CN2	I-6
D101	G-8
D102	G-8
D105	H-7
D106	G-7
D107	G-7
D201	F-8
D202	F-8
D205	F-7
D206	F-7
D207	F-7
D301	E-8
D302	E-8
D305	F-7
D306	E-7
D307	E-7
D401	D-8
D402	D-8
D405	E-7
D406	D-7
D407	D-7
D501	C-8
D502	C-8
D505	D-7
D506	C-7
D507	D-7
D601	C-8
D602	C-8
D605	C-7
D606	C-7
D607	C-7
D701	B-8
D702	B-8
D705	B-7
D706	B-7
D707	B-7
D801	A-8
D802	A-8
D805	B-7
D806	A-7
D807	A-7
FL101	G-8
FL201	F-8
FL301	E-8
FL401	D-8
FL501	C-8
FL601	C-8
FL701	B-8
FL801	A-8
IC101	G-8
IC102	G-7
IC103	G-7
IC104	G-5
IC105	H-5
IC106	G-5
IC201	F-8
IC202	F-7
IC203	F-7
IC204	F-5
IC205	F-5
IC206	F-5
IC301	E-8
IC302	E-7
IC303	E-7
IC304	E-5
IC305	E-5
IC306	E-5
IC401	D-8
IC402	D-7
IC403	D-7
IC404	D-5
IC405	E-5
IC406	D-5
IC501	C-8
IC502	C-7
IC503	C-7
IC504	C-5
IC505	D-5
IC506	C-5
IC601	C-8
IC602	C-7
IC603	C-7
IC604	C-5
IC605	C-5
IC606	C-5
IC701	B-8
IC702	B-7
IC703	B-7
IC704	B-5
IC705	B-5
IC706	B-5
IC801	A-8
IC802	A-7
IC803	A-7
IC804	A-5
IC805	B-5
IC806	A-5
ICA1	A-1
ICA2	A-2
ICA3	A-3
ICA4	A-4
ICB2	B-2
ICB4	B-4
ICC2	C-2
ICE2	E-2
ICF2	F-2
ICF4	F-4
ICG1	G-1
ICG2	G-2
ICG3	G-3
ICG4	G-4
ICH1	H-1
ICH2	H-2
ICH4	H-4
ICI1	I-1
ICI2	I-2
Q1	G-2
Q2	A-1
Q101	H-8
Q102	H-8
Q105	G-7
Q106	G-6
Q201	F-8
Q202	F-8
Q205	F-7
Q206	F-6
Q207	F-7
Q301	F-8
Q302	F-8
Q305	E-7
Q306	E-6
Q307	E-7
Q401	E-8
Q402	E-8
Q405	D-7
Q406	D-6
Q407	E-7
Q501	D-8
Q502	D-8
Q505	C-7
Q506	D-6
Q507	D-7
Q601	C-8
Q602	C-8
Q605	C-7
Q606	C-6
Q607	C-7
Q701	B-8
Q702	B-8
Q705	B-7
Q706	B-6
Q707	B-7
Q801	B-8
Q802	B-8
Q805	A-7
Q806	A-6
Q807	A-7
RB1	I-4
RB2	A-3
RV101	A-5
RV102	H-6
RV103	H-7
RV201	A-5
RV202	F-6
RV203	F-7
RV301	A-6
RV302	E-6
RV303	E-7
RV401	A-6
RV402	E-6
RV403	E-7
RV501	A-6
RV502	D-6
RV503	D-7
RV601	A-7
RV602	C-6
RV603	C-7
RV701	A-7
RV702	B-6
RV703	B-7
RV801	A-7
RV802	B-6
RV803	B-7
SW1	A-2
SW2	A-2
SW3	A-3
SW4	A-4
SW5	A-4
SW6	A-4
SW7	A-4
SW8	A-5
TP1	G-1
TP2	F-4
TP3	F-4
TP4	C-4
TP5	B-4

Applicable Serial No. 10001 to 10400	
Jumpers that have been soldered.	ICC2-33, 34 — ICB2-30, 31 ICE2-33, 34 — ICC2-30, 31 ICF2-33, 34 — ICE2-30, 31
Parts marked with ■ that have been installed on the solder side.	■ C61, ■ C62, ■ C63, ■ C64

Applied Serial No. 10401 and higher	
Parts that have been deleted.	C46, C47, C48 ICD2 ICD3 ICD4 R14, R15 RB3, RB4, RB5

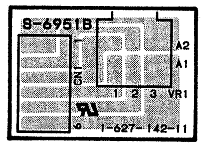
CARD RACK ARP-2/JK-23, VR-75 BOARD

JK-23 BOARD (1-627-141-11)
Component Side


SONY
JK-23
JAPAN
1-627-141-11
S-6950B
CN1

▨ SOLDER SIDE PATTERN

VR-75 BOARD (1-627-142-11)
Component Side


8-6951B
A2
A1
CN1
1 2 3 VR1
1-627-142-11

▨ SOLDER SIDE PATTERN

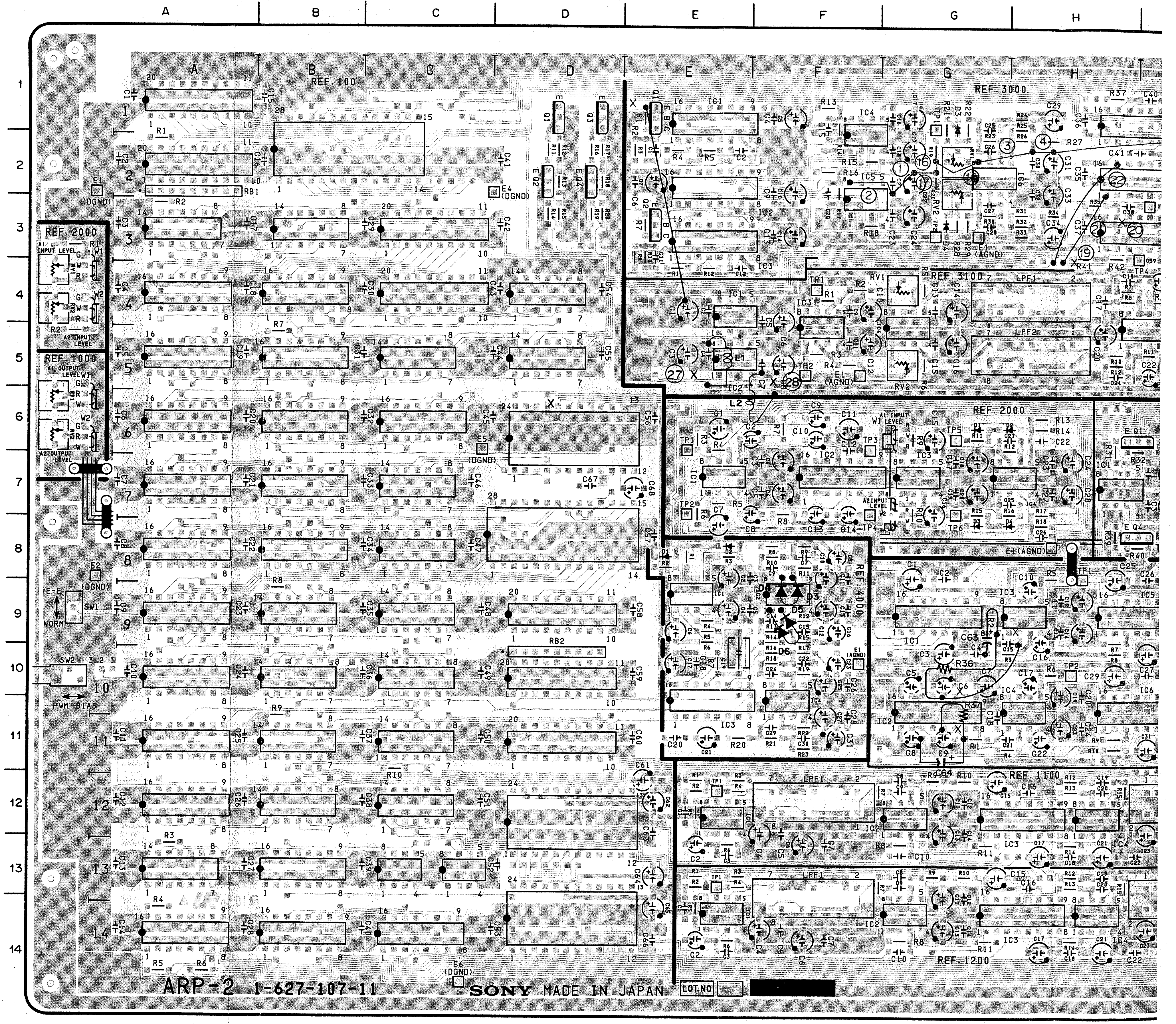
Applied Serial No. Up to 10100	
Jumpers that have been soldered or cut.	+15 V (REF6000) — C3234 (+) C3019 (+) — C3021 (① See the board) C3021 — IC3005-8 (② See the board) C3030 — IC3006-8 (③ See the board) C3031 (+) — C3030 (④ See the board) C3202 (+) — IC3201-8 (⑤ See the board) C3203 (+) — C3202 (⑥ See the board) C3208 (+) — IC3202-8 (⑦ See the board) C3209 (+) — C3208 (⑧ See the board) C3213 (+) — IC3203-8 (⑨ See the board) C3214 (+) — IC3004-1 C3227 — IC3205-8 (⑩ See the board) C3228 (+) — C3227 (⑪ See the board) C3233 — IC3206-8 (⑫ See the board) C3234 (+) — C3233 (⑬ See the board) IC3006-8 — R3019 (⑭ See the board) IC3201-8 — C3031 (+) IC3202-8 — C3203 (+) IC3203-8 — C3209 (+) IC3204-1 — C3213 (⑮ See the board) IC3205-8 — C3214 (+) IC3206-8 — RV3201-3 J1301 (cut) J1302 (Jumper) J1303 (Jumper) J1304 (cut) R3019 — R3020 (⑯ See the board) R3020 — C3019 (+) (⑰ See the board) RV3201-3 — C3228 (+)

Applied Serial No. UP to 10200	
Jumpers that have been soldered or cut.	D1001 ANODE ⇸ C1038 (+) D1002 cathode ⇸ C1057 IC1002-5 ⇸ R1001 IC1002-12 ⇸ R1002 IC1003-2 ⇸ R1002 IC1009-11 ⇸ Q1001 (C) IC1010-11 ⇸ Q1001 (C) IC2301-1 ⇸ R2301 IC2301-6 ⇸ T.H (⑱ See the board) IC2302-6 ⇸ IC2302-7 IC3007-1 ⇸ LAND 1 (⑲ See the board) IC3007-15 ⇸ LAND 2 (⑳ See the board) Q1001 (B) — C1046 (+) Q1001 (B) ⇸ R1024 R2303 ⇸ TP2302 R3001 ⇸ D5V LAND ㉗ (See the board) ㉘ (See the board) D1001 ANODE — D1002 cathode D1002 cathode — IC1301-16 IC1002-12 — IC1003-2 IC1009-11 — IC1010-11 IC3007-1 — LAND 2 (㉑ See the board) IC3007-15 — LAND 1 (㉒ See the board) R1024 — C1046 (+) R3001 — C3101(+) Jumper (㉓ See the board)
Parts that have been added.	L3101, L3102
Parts that have been deleted.	C3104, C3107 R1225
Parts marked with ■ that have been installed on the solder side.	■ C1063 R1002 — C1004 ■ C1064 C1008 (−) — R1001 ■ D4003 ■ D4004 ■ D4005 ■ D4006 ■ R1023 IC1010-11 — Q1001 (Collector) ■ R1035 C1046 (+) — Q1001 (Base) ■ R1036 IC1002-12 — R1002 ■ R1037 IC1002-5 — R1001 ■ R2209 D2203 ANODE — AGND (㉔ See the board) ■ R2210 D2201 ANODE — AGND (㉕ See the board) ■ R2301 IC2301-1 — R2301 ■ R2305 IC2301-1 — TP2301 ■ R2306 (㉖ See the board) ■ R2307 R2303 — TP2302 ■ R2308 IC2302-6 — IC2302-7
Parts that have been changed.	C3101, C3103, C3106, C3108 10MF 35 V → 470MF 10 V

T.H. = Through Hole

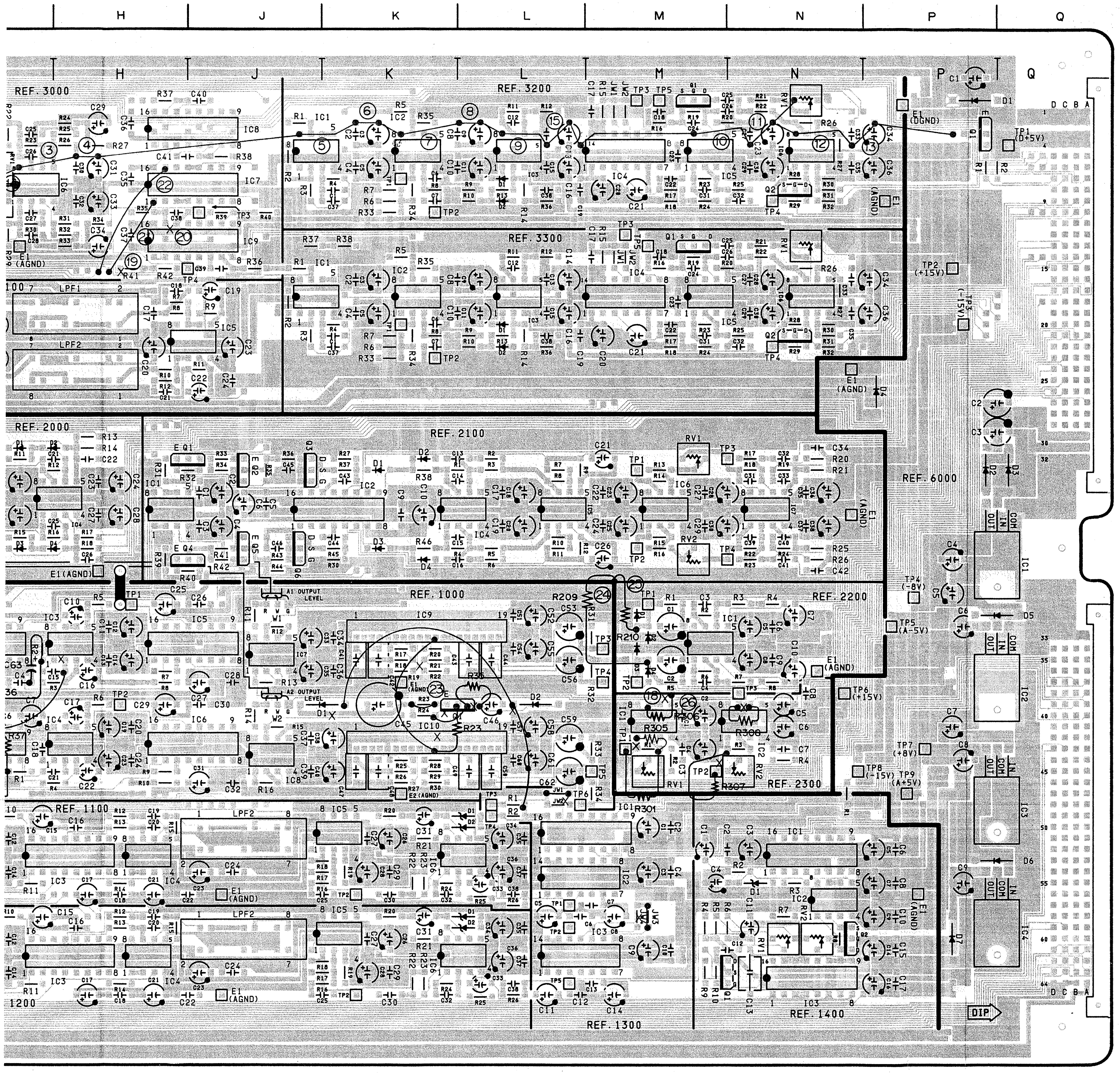
ARP-2 BOARD (1-627-107-11)
Component Side

S/N; 10001 TO 10200


A
B
C
D
E
F
G
H
1
2
3
4
5
6
7
8
9
10
11
12
13
14
REF.100
REF.2000
REF.1000
REF.3000
REF.3100
REF.4000
REF.1100
REF.1200
A1 INPUT LEVEL
A2 INPUT LEVEL
A1 OUTPUT LEVEL
A2 OUTPUT LEVEL
E1 (DGND)
E2 (DGND)
E4 (DGND)
E5 (DGND)
E6 (DGND)
E1 (AGND)
E-E
NORM
SW1
SW2
PWM BIAS
LPF1
LPF2
RB1
RB2
ARP-2 1-627-107-11
SONY MADE IN JAPAN
LOT.NO

▨ SOLDER SIDE PATTERN

CARD RACK ARP-2/JK-23, VR-75 BOARD



D1001	J-10
D1002	L-10
D1101	L-12
D1102	L-12
D1201	L-13
D1202	L-13
D1401	N-13
D2001	G-6
D2002	G-6
D2003	G-8
D2004	G-8
D2101	K-6
D2102	K-6
D2103	K-8
D2104	K-8
D2201	M-9
D2202	M-9
D2203	M-9
D2204	M-9
D3003	G-1
D3004	G-3
D3201	L-2
D3202	L-2
D3301	L-4
D3302	L-5
D4001	E-8
D4002	E-8
D6001	P-1
D6002	P-6
D6003	Q-6
D6004	P-5
D6005	Q-9
D6006	Q-12
D6007	P-13
E101	A-2
E102	A-8
E104	D-2
E105	C-6
E106	C-14
E1001	K-10
E1002	K-11
E1101	J-13
E1201	J-14
E1401	P-13
E2001	H-8
E2101	N-7
E2201	N-9
E3001	G-3
E3101	F-5
E3201	P-2
E4001	F-10
E6001	N-5
E6001	P-1
IC1001	G-9
IC1002	G-10
IC1004	H-10
IC1005	J-9
IC1006	J-10
IC1007	J-9
IC1008	J-11
IC1009	K-9
IC1010	K-10
IC1101	E-12
IC1102	G-12
IC1103	H-12
IC1104	H-12
IC1105	K-12
IC1106	L-12
IC1201	E-14
IC1202	G-14
IC1203	H-14
IC1204	H-14
IC1205	K-13
IC1206	L-14
IC1301	L-12
IC1302	L-12
IC1303	L-14
IC1401	N-12
IC1402	N-13
IC1403	N-14
IC2001	E-7
IC2003	G-7
IC2004	H-7
IC2101	H-7
IC2102	K-7
IC2104	L-7
IC2105	L-7
IC2106	M-7
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IC2302	N-10
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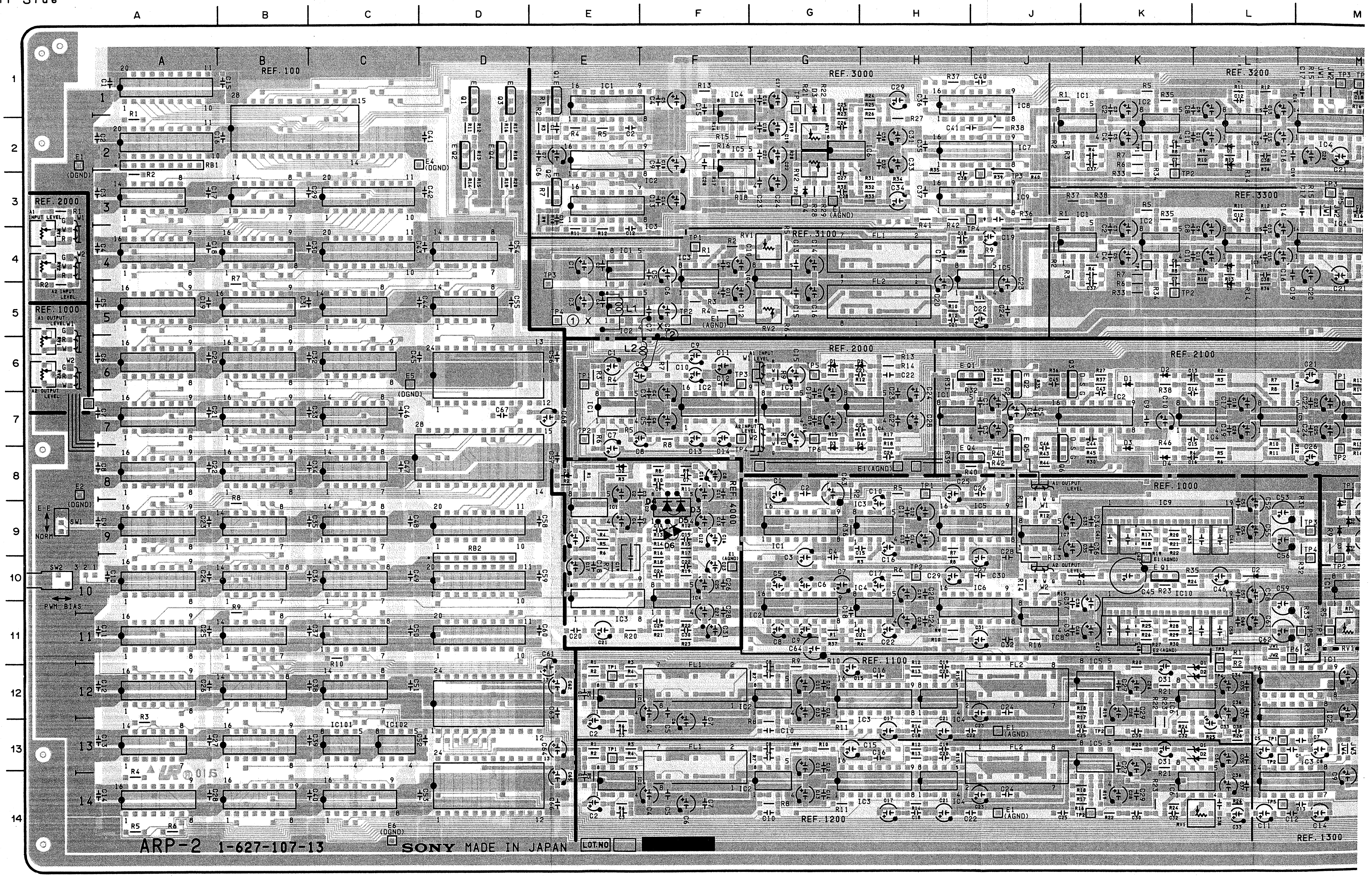
IC3005	F-2
IC3006	G-2
IC3007	J-2
IC3008	J-1
IC3009	J-3
IC3101	E-4
IC3102	E-5
IC3102	F-7
IC3103	F-4
IC3104	G-4
IC3105	J-4
IC3201	J-2
IC3202	K-2
IC3203	L-2
IC3204	M-2
IC3205	M-2
IC3206	N-2
IC3301	J-4
IC3302	K-4
IC3303	L-4
IC3304	M-4
IC3305	M-4
IC3306	N-4
IC4001	E-9
IC4002	F-9
IC4003	E-10
IC4004	F-10
IC6001	Q-8
IC6002	Q-10
IC6003	Q-11
IC6004	Q-13
IC7003	H-9
ICA1	A-1
ICA2	A-2
ICA3	A-3
ICA4	A-4
ICA5	A-5
ICA6	A-6
ICA7	A-7
ICA8	A-8
ICA9	A-9
ICA10	A-10
ICA11	A-11
ICA12	A-12
ICA13	A-13
ICA14	A-14
ICB2	B-2
ICB3	B-3
ICB4	B-4
ICB5	B-5
ICB6	B-6
ICB7	B-7
ICB8	B-8
ICB9	B-9
ICB10	B-10
ICB11	B-11
ICB12	B-12
ICB13	B-13
ICB14	B-14
ICC3	C-3
ICC4	C-4
ICC5	C-5
ICC6	C-6
ICC7	C-7
ICC8	C-8
ICC9	C-9
ICC10	C-10
ICC11	C-11
ICC12	C-12
ICC13	C-13
ICC14	C-13
ICC15	C-14
ICD4	D-4
ICD5	D-5
ICD6	D-6
ICD8	D-8
ICD9	D-9
ICD10	D-10
ICD11	D-11
ICD12	D-12
ICD14	D-14
LPF1101	F-12
LPF1102	J-12
LPF1202	F-13
LPF1202	J-13
LPF3101	H-4
LPF3102	H-5
Q101	D-1
Q102	D-2
Q103	D-1
Q104	D-2
Q1001	K-10
Q1401	N-14
Q1402	N-13
Q2101	H-6
Q2102	J-6
Q2103	J-6
Q2104	H-8
Q2105	J-8
Q2106	J-8
Q3001	E-1
Q3002	E-3
Q3201	M-1
Q3202	N-2
Q3301	M-3
Q3302	N-4
Q6001	P-1
RB101	A-2
RB102	D-10
RV1001	A-6
RV1002	A-6
RV1401	N-13
RV1402	N-13
RV2001	A-4
RV2002	A-4
RV2101	M-6
RV2102	M-8
RV2301	M-11
RV2302	N-11
RV3001	G-2
RV3002	G-2
RV3101	G-4
RV3102	G-5
RV3201	N-1
RV3301	N-3
SW101	A-9
SW102	A-10
TP1001	H-8
TP1002	H-10
TP1003	M-9
TP1004	M-10
TP1005	M-11
TP1006	L-11
TP1101	E-12
TP1102	K-13
TP1201	E-13
TP1202	K-14
TP1301	L-13
TP1302	L-13
TP1303	L-11
TP1304	L-12
TP1305	L-14
TP2001	E-6
TP2002	E-7
TP2005	G-6
TP2006	G-7
TP2101	M-6
TP2102	M-8
TP2103	M-6
TP2104	M-8
TP2201	M-8
TP2202	M-10
TP2203	N-10
TP2301	M-10
TP2302	M-11
TP3001	G-1
TP3002	G-3
TP3003	J-3
TP3004	H-3
TP3101	F-4
TP3102	F-5
TP3103	F-6
TP3104	F-7
TP3201	K-2
TP3202	K-3
TP3203	M-1
TP3204	N-2
TP3205	M-1
TP3301	K-4
TP3302	K-5
TP3303	M-3
TP3304	N-5
TP3305	M-3
TP6001	Q-2
TP6002	P-3
TP6003	P-4
TP6004	P-8
TP6005	P-9
TP6006	N-10
TP6007	P-10
TP6008	N-11
TP6009	P-11

CARD RACK ARP-2 BOARD

ARP-2 BOARD (1-627-107-13) S/N; 10201 AND HIGHER
Component Side


A
B
C
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F
G
H
J
K
L
M
1
2
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5
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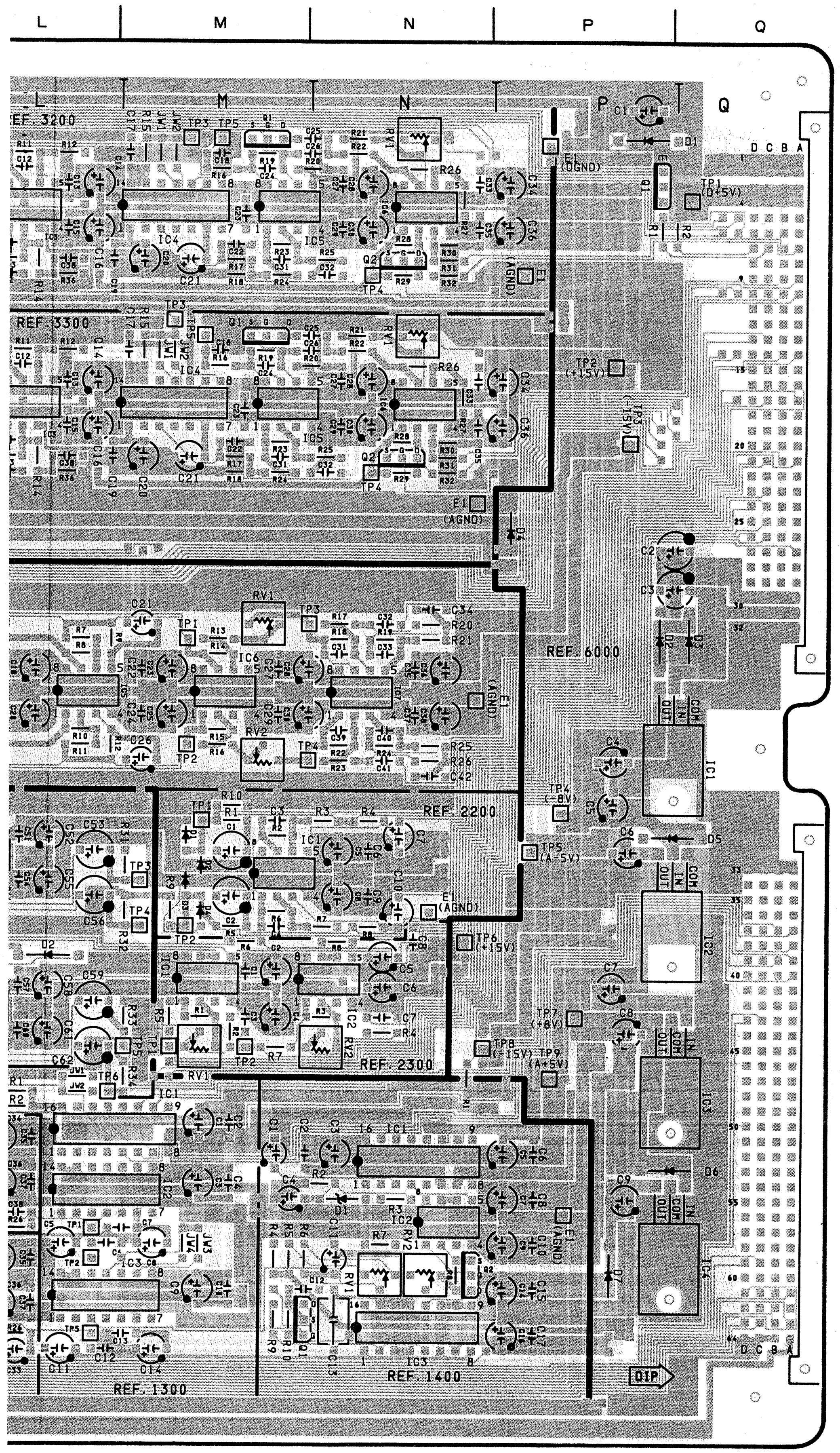
9
10
11
12
13
14
REF.100
REF.3000
REF.3200
REF.3100
REF.3300
REF.2000
REF.2100
REF.1000
REF.4000
REF.1100
REF.1200
REF.1300
A1 INPUT LEVEL
A2 INPUT LEVEL
A1 OUTPUT LEVEL
A2 OUTPUT LEVEL
E1 (DGND)
E2 (DGND)
E4 (DGND)
E5 (DGND)
E6 (DGND)
E1 (AGND)
SW1
E-E
NORM
SW2
PWM BIAS
RB1
RB2
FL1
FL2
RV1
RV2
L1
L2
ARP-2 1-627-107-13
SONY MADE IN JAPAN
LOT.NO

■ SOLDER SIDE PATTERN

CARD RACK ARP-2 BOARD

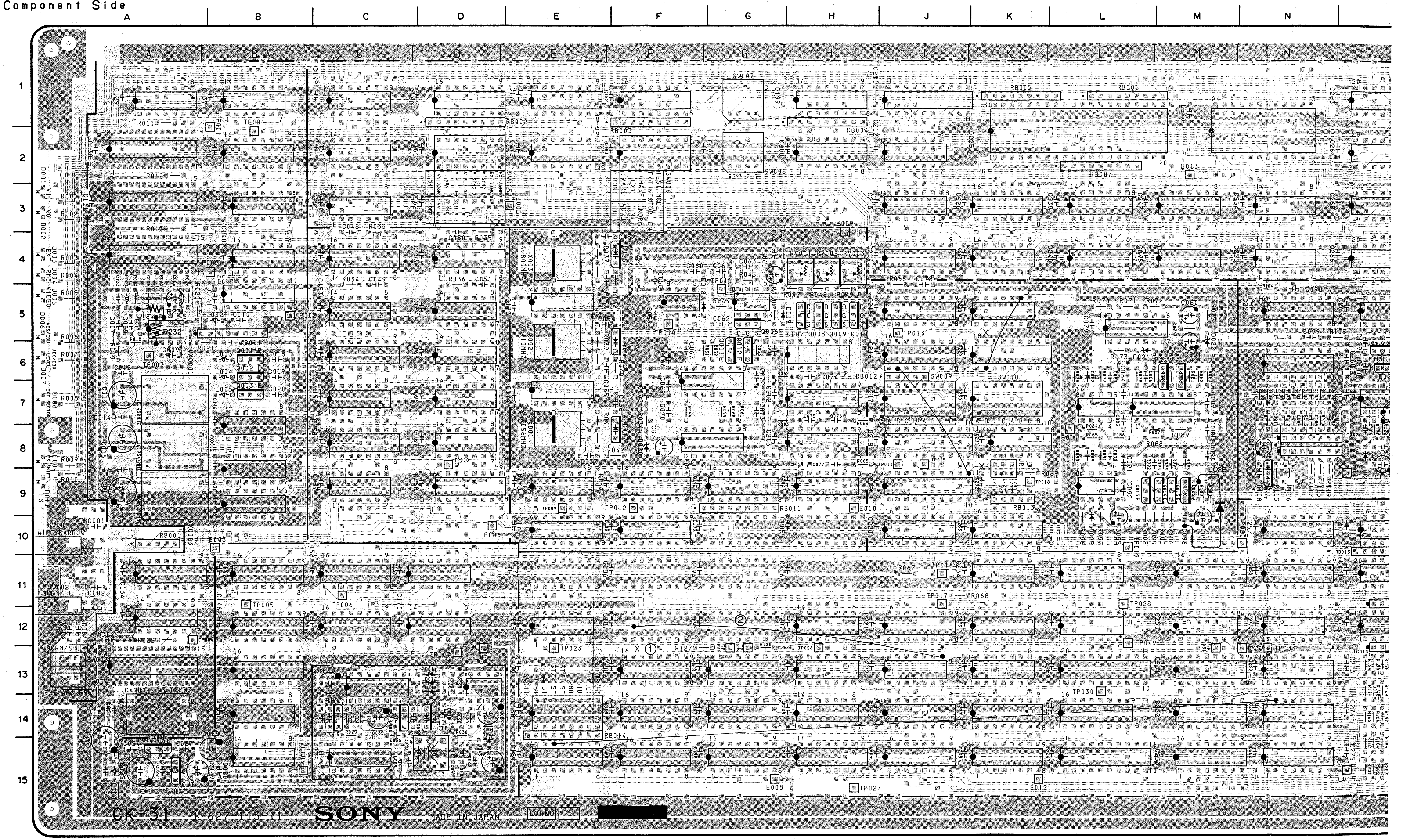


Applied Serial No. 10201 and higher	
Jumpers that have been cut.	① (See the board) ② (See the board)
Parts marked with ■ that have been installed on the solder side.	■ D4003 ■ D4004 ■ D4005 ■ D4006
Parts that have been deleted.	C3104, C3107
Parts that have been changed.	C3101, C3103, C3106, C3108 10MF 35 V → 470MF 10 V
Parts that have been added.	L3101, L3102

D1001	J-10
D1002	L-10
D1101	L-12
D1102	L-12
D1201	L-13
D1202	L-13
D1401	N-13
D2001	G-6
D2002	F-6
D2003	G-8
D2004	H-8
D2101	K-6
D2102	K-6
D2103	K-8
D2104	K-8
D2201	M-9
D2202	M-9
D2203	M-9
D2204	M-9
D3003	G-1
D3004	G-3
D3201	L-2
D3202	L-2
D3301	L-4
D3302	L-5
D4001	E-8
D4002	E-8
D6001	P-1
D6002	P-6
D6003	Q-6
D6004	P-5
D6005	Q-9
D6006	Q-12
D6007	P-13
E101	A-2
E102	A-8
E104	D-2
E105	C-6
E106	C-14
E1001	K-10
E1002	K-11
E1101	J-13
E1201	J-14
E1401	P-13
E2001	H-8
E2101	N-7
E2201	N-9
E3001	G-3
E3101	F-5
E3201	P-2
E3301	N-5
E4001	F-10
E6001	N-5
E6001	P-1
FL1101	F-12
FL1102	J-13
FL1201	F-13
FL1202	J-14
FL3101	H-4
FL3102	H-5
IC1001	G-9
IC1002	G-10
IC1003	H-9
IC1004	H-10
IC1005	J-9
IC1006	J-10
IC1007	J-9
IC1008	J-11
IC1009	K-9
IC1010	K-10
IC1101	E-12
IC1102	G-12
IC1103	H-12
IC1104	H-12
IC1105	K-12
IC1106	L-12
IC1201	E-14
IC1202	G-14
IC1203	H-14
IC1204	H-14
IC1205	K-13
IC1206	L-14
IC1301	L-12
IC1302	L-12
IC1303	L-14
IC1401	N-12
IC1402	N-13
IC1403	N-14
IC2001	E-7
IC2002	F-7
IC2003	G-7
IC2004	H-7
IC2101	H-7
IC2102	K-7
IC2104	L-7
IC2105	L-7
IC2106	M-7
IC2107	N-7
IC2201	M-9
IC2301	M-10
IC2302	N-10
IC3001	E-1
IC3002	E-2
IC3003	E-3
IC3004	F-1
IC3005	F-2
IC3006	G-2
IC3007	J-2
IC3008	J-1
IC3009	J-3
IC3101	E-4
IC3102	E-5
IC3103	F-4
IC3104	G-4
IC3105	J-4
IC3201	J-2
IC3202	K-2
IC3203	L-2
IC3204	M-2
IC3205	M-2
IC3206	N-2
IC3301	J-4
IC3302	K-4
IC3303	L-4
IC3304	M-4
IC3305	M-4
IC3306	N-4
IC4001	E-9
IC4002	F-9
IC4003	E-10
IC4004	F-10
IC6001	Q-8
IC6002	Q-10
IC6003	Q-11
IC6004	Q-13
ICA1	A-1
ICA2	A-2
ICA3	A-3
ICA4	A-4
ICA5	A-5
ICA6	A-6
ICA7	A-7
ICA8	A-8
ICA9	A-9
ICA10	A-10
ICA11	A-11
ICA12	A-12
ICA13	A-13
ICA14	A-14
ICB2	B-2
ICB3	B-3
ICB4	B-4
ICB5	B-5
ICB6	B-6
ICB7	B-7
ICB8	B-8
ICB9	B-9
ICB10	B-10
ICB11	B-11
ICB12	B-12
ICB13	B-13
ICB14	B-14
ICC3	C-3
ICC4	C-4
ICC5	C-5
ICC6	C-6
ICC7	C-7
ICC8	C-8
ICC9	C-9
ICC10	C-10
ICC11	C-11
ICC12	C-12
ICC13	C-13
ICC14	C-13
ICC15	C-14
ICD4	D-4
ICD5	D-5
ICD6	D-6
ICD8	D-8
ICD9	D-9
ICD10	D-10
ICD11	D-11
ICD12	D-12
ICD14	D-14
PV1201	L-14
Q101	D-1
Q102	D-2
Q103	D-1
Q104	D-2
Q1001	K-10
Q1401	N-14
Q1402	N-13
Q2101	J-6
Q2102	J-6
Q2103	J-6
Q2104	J-8
Q2105	J-8
Q2106	J-8
Q3001	E-1
Q3002	E-3
Q3201	M-1
Q3202	N-2
Q3301	M-3
Q3302	N-4
Q6001	P-1
RB101	A-2
RB102	D-10
RV1001	A-6
RV1002	A-6
RV1201	L-14
RV1401	N-13
RV1402	N-13
RV2001	A-4
RV2002	A-4
RV2101	M-6
RV2102	M-8
RV2301	M-11
RV2302	N-11
RV3001	G-2
RV3002	G-2
RV3101	G-4
RV3102	G-5
RV3201	N-1
RV3301	N-3
SW101	A-9
SW102	A-10
TP1001	H-8
TP1002	H-10
TP1003	M-9
TP1004	M-10
TP1005	M-11
TP1006	L-11
TP1101	E-12
TP1102	K-13
TP1201	E-13
TP1202	K-14
TP1301	L-13
TP1302	L-13
TP1303	L-11
TP1304	L-12
TP1305	L-14
TP2001	E-6
TP2002	E-7
TP2003	F-6
TP2004	F-7
TP2005	G-6
TP2006	G-7
TP2101	M-6
TP2102	M-8
TP2103	M-6
TP2104	M-8
TP2201	M-8
TP2202	M-10
TP2301	M-10
TP2302	M-11
TP3001	G-1
TP3002	G-3
TP3003	J-3
TP3004	J-3
TP3101	F-4
TP3102	F-5
TP3103	E-5
TP3104	E-5
TP3201	K-2
TP3202	K-3
TP3203	M-1
TP3204	N-2
TP3205	M-1
TP3301	K-4
TP3302	K-5
TP3303	M-3
TP3304	N-5
TP3305	M-3
TP6001	Q-2
TP6002	P-3
TP6003	P-4
TP6004	P-8
TP6005	P-9
TP6006	N-10
TP6007	P-10
TP6008	N-11
TP6009	P-11

S/N; 10001 TO 10300

CK-31 BOARD (1-627-113-11)
Component Side


A
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G
H
J
K
L
M
N
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12
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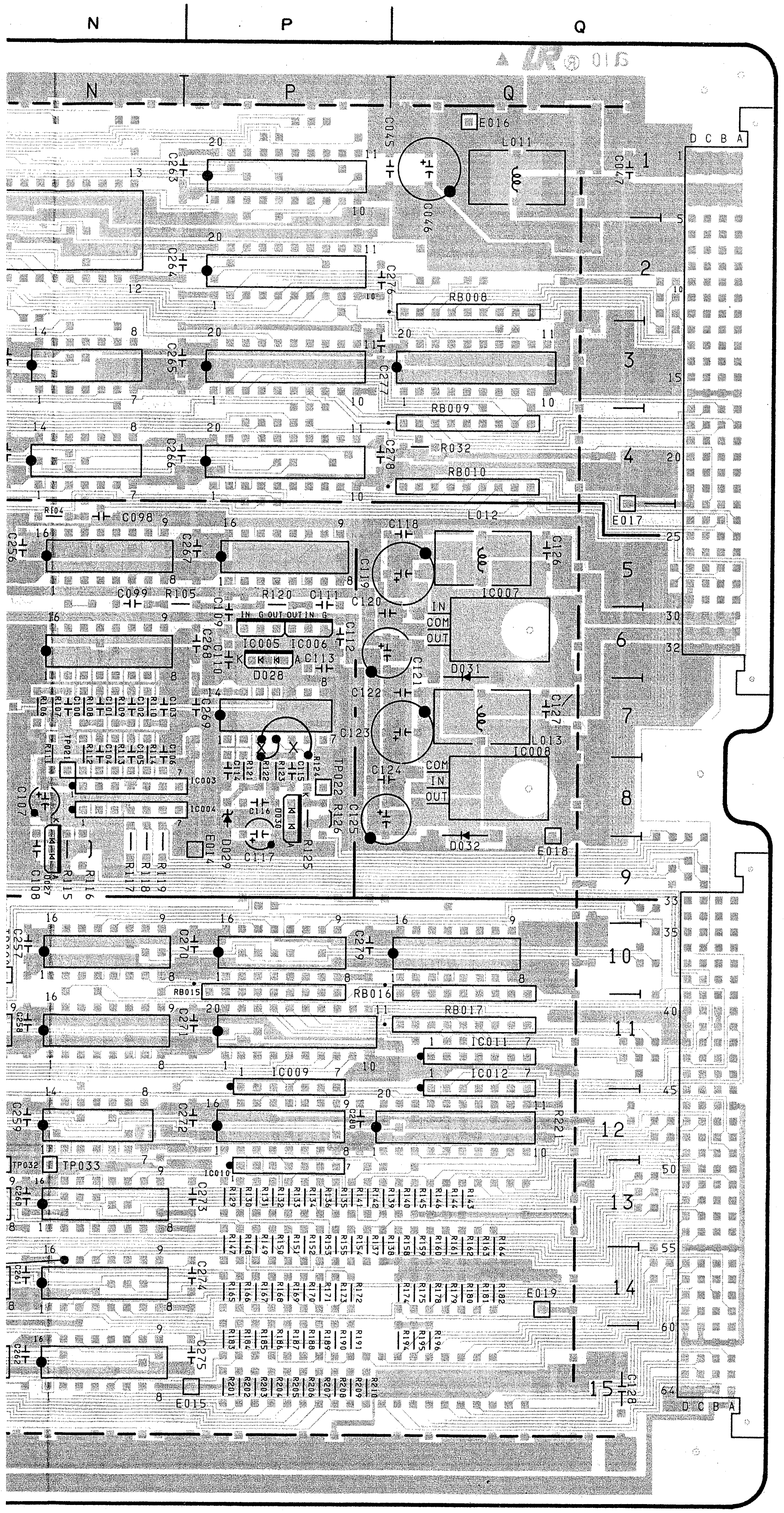
14
15
CK-31
1-627-113-11
SONY
MADE IN JAPAN
LOT.NO
SW001 WIDE/NARROW
SW002 NORM/
NORM/SHIFT
EXT/AES-EBU
CX0001 23.04MHZ
X003 4.800MHZ
X002 4.410MHZ
X001 4.4056MHZ
SW005
SW006
SW007
SW008
SW009
SW010
SW011
RV001 RV002 RV003
D026

■ SOLDER SIDE PATTERN

CARD RACK CK-31 BOARD



Applied Serial No. 10001 and higher	
Parts marked with ■ that have been installed on the solder side.	■ R231, ■ R232
Parts that have been deleted.	C089 C090 R089

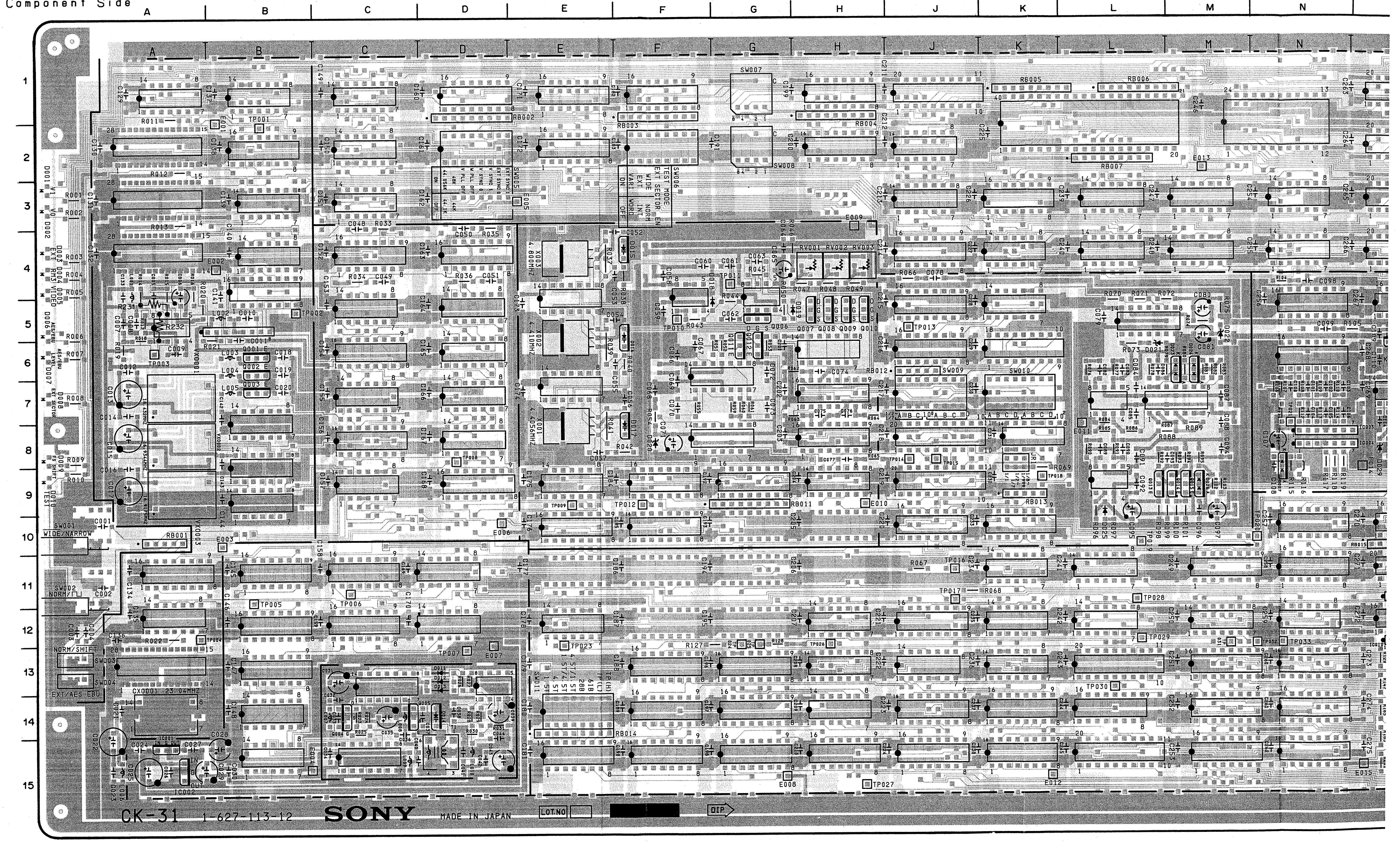
Applied Serial No. Up to 10300	
Jumpers that have been soldered or cut.	D026 ANODE -×- GND ICC8-2 -×- ICF13-2 (① See the board) ICJ9-11 -×- JR1 1/1 ICK6-2 -×- ICK5-8 ICN14-15 -×- ICE15-15 ICP7-3 -×- R122 ICP7-4 -×- R124 ICC8-2 — ICJ13-8 (② See the board) ICJ6-2 — ICJ9-11 ICK5-9 — ICK6-2 ICN14-15 — ICE15-14 ICP7-3 — R124 ICP7-4 — R122
Parts marked with ■ that have been installed on the solder side.	■ 1/2 D026 — 1SS119 ■ R102 — −12 V

CXO001	A-14
D001	A-3
D002	A-3
D003	A-4
D004	A-4
D005	A-5
D006	A-6
D007	A-6
D008	A-7
D009	A-8
D010	A-9
D011	D-13
D012	D-13
D013	D-13
D014	B-14
D015	F-4
D016	F-6
D017	F-8
D018	G-5
D019	H-5
D020	F-8
D021	L-6
D022	M-6
D023	M-6
D024	M-6
D025	L-10
D026	M-9
D027	N-9
D028	P-6
D029	P-8
D030	P-8
D031	Q-7
D032	Q-8
E001	B-2
E002	B-4
E003	B-10
E004	B-15
E005	E-3
E006	D-10
E007	D-13
E008	G-15
E009	H-4
E010	H-9
E012	L-15
E013	M-2
E014	P-9
E015	P-15
E016	Q-1
E017	Q-5
E018	Q-8
E019	Q-14
IC001	A-15
IC002	A-15
IC003	N-8
IC004	N-8
IC005	P-6
IC006	P-6
IC007	Q-6
IC008	Q-8
IC009	P-12
IC011	Q-11
IC012	Q-11
ICA1	A-1
ICA2	A-2
ICA3	A-3
ICA4	A-4
ICA5	A-5
ICA11	A-11
ICA12	A-12
ICA13	A-13
ICB1	B-1
ICB2	B-2
ICB3	B-3
ICB4	B-4
ICB5	B-5
ICB6	B-5
ICB7	B-8
ICB8	B-9
ICB9	B-9
ICB11	B-11
ICB12	B-12
ICB13	B-13
ICB14	B-14
ICB15	B-15
ICC1	C-1
ICC2	C-2
ICC3	C-3
ICC4	C-4
ICC5	C-5
ICC6	C-6
ICC7	C-7
ICC8	C-8
ICC9	C-9
ICC11	C-11
ICC12	C-12
ICC13	C-13
ICC15	C-15
ICD1	D-1
ICD2	D-2
ICD4	D-4
ICD5	D-5
ICD6	D-6
ICD7	D-7
ICD8	D-8
ICD9	D-9
ICD11	D-11
ICD12	D-11
ICD13	D-13
ICE1	E-1
ICE2	E-2
ICE5	E-5
ICE7	R-7
ICE9	E-9
ICE10	E-10
ICE12	E-12
ICE14	E-14
ICE15	E-15
ICF1	F-1
ICF2	F-2
ICF5	F-5
ICF9	F-9
ICF10	F-10
ICF13	F-13
ICF14	F-14
ICF15	F-15
ICG5	G-5
ICG7	G-7
ICG8	G-8
ICG9	G-9
ICG13	G-13
ICG14	G-14
ICG15	G-15
ICH1	H-1
ICH2	H-2
ICH6	H-6
ICH7	H-7
ICH8	H-8
ICH9	H-9
ICH12	H-12
ICH13	H-13
ICH14	H-14
ICH15	H-15
ICJ1	J-1
ICJ2	J-2
ICJ3	J-3
ICJ4	J-4
ICJ5	J-5
ICJ6	J-6
ICJ7	J-7
ICJ8	J-8
ICJ9	J-9
ICJ10	J-10
ICJ12	J-12
ICJ13	J-13
ICJ14	J-14
ICJ15	J-15
ICK3	K-3
ICK4	K-4
ICK5	K-5
ICK6	K-6
ICK8	K-8
ICK10	K-10
ICK11	K-11
ICK12	K-12
ICK13	K-13
ICK14	K-14
ICK15	K-15
ICL2	L-2
ICL3	L-3
ICL4	L-4
ICL5	L-5
ICL7	L-7
ICL9	L-9
ICL11	L-11
ICL12	L-12
ICL13	L-13
ICL14	L-14
ICL15	L-15
ICM3	M-3
ICM4	M-4
ICM7	M-7
ICM11	M-11
ICM12	M-12
ICM13	M-13
ICM14	M-14
ICM15	M-15
ICN2	N-2
ICN3	N-3
ICN4	N-4
ICN5	N-5
ICN6	N-6
ICN10	N-10
ICN12	N-12
ICN13	N-13
ICN14	N-14
ICN15	N-15
ICP1	P-1
ICP2	P-2
ICP3	P-3
ICP4	P-4
ICP5	P-5
ICP7	P-7
ICP10	P-10
ICP11	P-11
ICP12	P-12
ICQ3	Q-3
ICQ10	Q-10
ICQ15	Q-15
Q001	B-6
Q002	B-7
Q003	B-7
Q004	C-14
Q005	C-14
Q006	G-5
Q007	H-5
Q008	H-5
Q009	H-5
Q010	H-5
Q011	G-6
Q012	G-6
Q013	L-9
Q014	M-9
Q015	M-9
RB001	A-10
RB002	D-2
RB003	F-2
RB004	H-2
RB005	K-1
RB006	L-1
RB007	L-2
RB008	Q-2
RB009	Q-4
RB010	Q-4
RB011	G-9
RB012	J-7
RB013	K-9
RB015	P-11
RB016	Q-11
RB017	Q-11
RV001	H-4
RV002	H-4
RV003	H-4
SW001	A-10
SW002	A-12
SW003	A-13
SW004	A-13
SW005	D-3
SW006	F-3
SW007	G-1
SW008	G-2
SW009	J-7
SW010	K-7
TP001	B-2
TP002	B-5
TP003	A-6
TP004	A-12
TP005	B-11
TP006	C-11
TP007	D-13
TP008	D-9
TP009	E-9
TP010	F-5
TP011	G-5
TP012	F-9
TP013	J-5
TP014	J-9
TP015	J-9
TP016	J-11
TP017	J-11
TP018	K-9
TP019	L-10
TP020	N-10
TP021	N-8
TP022	P-8
TP023	E-13
TP024	G-13
TP025	G-13
TP026	H-13
TP027	H-15
TP028	L-12
TP029	L-13
TP030	L-14
TP031	M-13
TP032	N-13
TP033	N-13
VXO001	A-7
VXO002	A-8
VXO003	A-9
X001	E-8
X002	E-6
X003	E-4

CARD RACK   CK-31 BOARD

CK-31 BOARD (1-627-113-12) S/N; 10301 AND HIGHER

Component Side


A
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14
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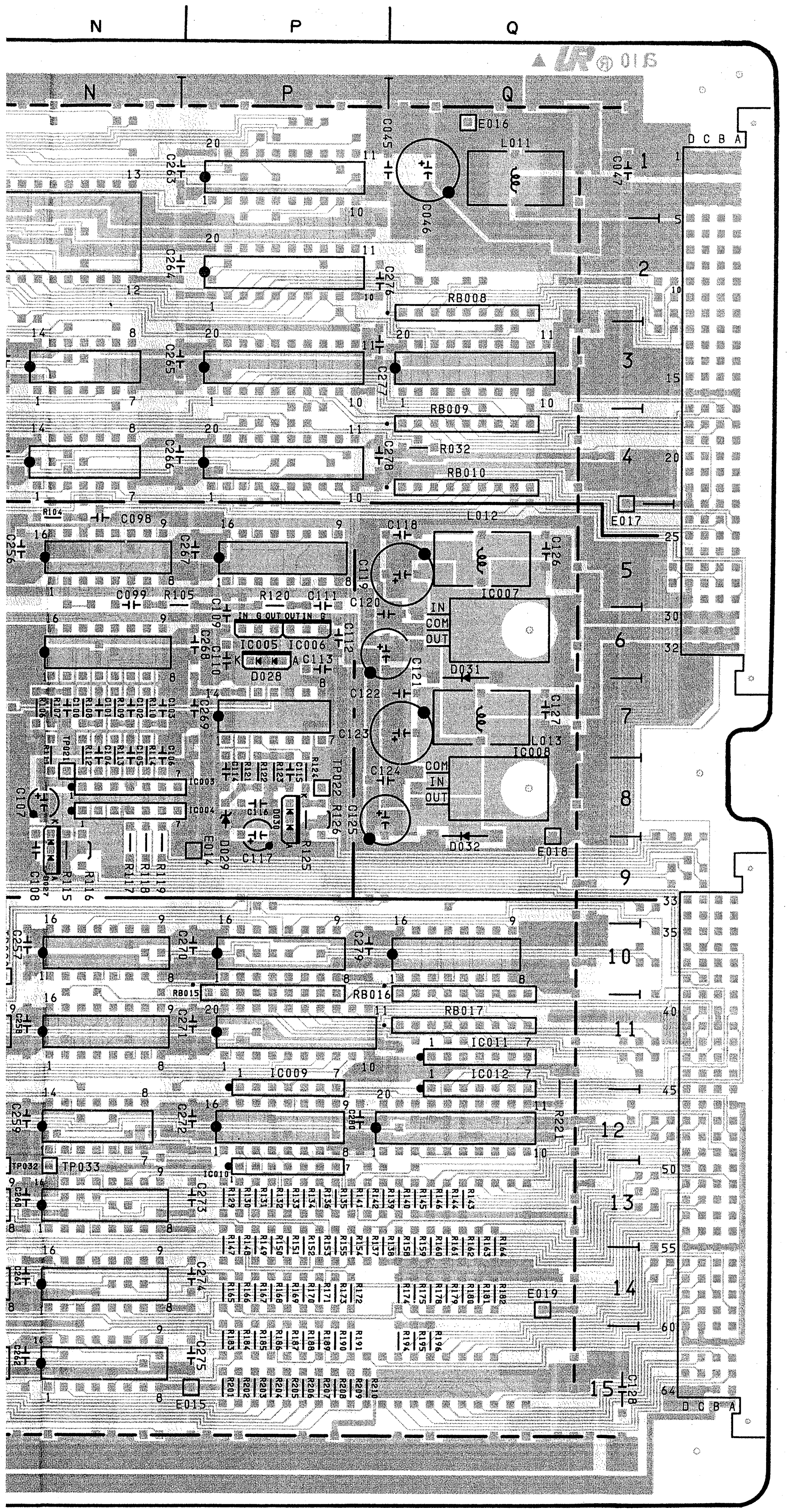
CK-31
1-627-113-12
SONY
MADE IN JAPAN
LOT NO
DIP
SW001 WIDE/NARROW
SW002 NORM/FULL
NORM/SHIFT
SW003
SW004
EXT/AES EBU
CX0001 23.04MHZ
X001 4.4956MHZ
X002 4.10MHZ
X003 4.800MHZ
SW005
SW006
SW007
SW008
SW009
SW010
SW011
RB001
RB002
RB003
RB004
RB005
RB006
RB007
RB011
RB012
RB013
RB014
RB015
RV001
RV002
RV003
TEST MODE
EXT SECTOR EN
WIDE NORM
EXT INT
VARI WORD
ON OFF

■ SOLDER SIDE PATTERN

CARD RACK CK-31 BOARD

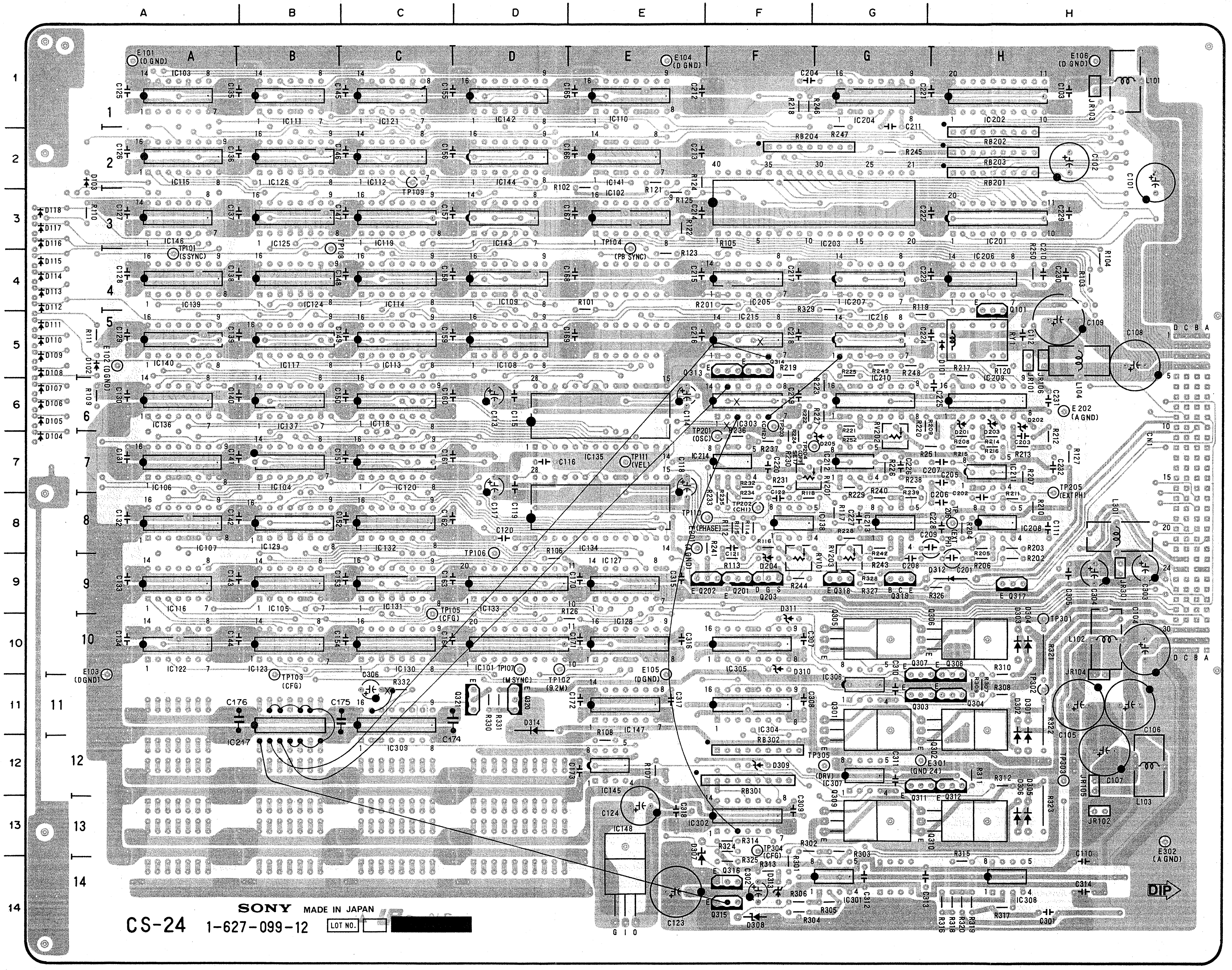


Applied Serial No. 10001 and higher	
Parts marked with ■ that have been installed on the solder side.	■ R231, ■ R232

CXO001	A-14
D001	A-3
D002	A-3
D003	A-4
D004	A-4
D005	A-4
D006	A-5
D007	A-6
D008	A-7
D009	A-8
D010	A-9
D011	D-13
D012	D-13
D013	D-13
D014	D-14
D015	F-4
D016	F-6
D017	F-8
D018	G-5
D019	H-5
D020	F-8
D021	L-6
D022	M-6
D023	M-6
D024	M-6
D025	L-10
D026	M-9
D027	N-9
D028	P-6
D029	P-8
D030	P-8
D031	Q-6
D032	Q-8
E001	B-2
E002	B-4
E003	B-10
E004	B-15
E005	E-3
E006	D-10
E007	D-13
E008	G-15
E009	H-4
E010	H-9
E011	L-8
E012	K-15
E013	M-2
E014	P-9
E015	P-15
E016	Q-1
E017	Q-4
E018	Q-8
E019	Q-14
IC001	A-15
IC002	A-15
IC003	N-8
IC004	N-8
IC005	P-6
IC006	P-6
IC007	Q-6
IC008	Q-8
IC009	P-12
IC010	P-13
IC011	Q-11
IC012	Q-11
ICA1	A-1
ICA2	A-2
ICA3	A-3
ICA4	A-4
ICA5	A-5
ICA11	A-11
ICA12	A-12
ICA13	A-13
ICB1	B-1
ICB2	B-2
ICB3	B-3
ICB4	B-4
ICB5	B-4
ICB6	B-5
ICB7	B-8
ICB8	B-9
ICB9	B-9
ICB11	B-11
ICB12	B-12
ICB13	B-13
ICB14	B-14
ICB15	B-15
ICC1	C-1
ICC2	C-2
ICC3	C-3
ICC4	C-4
ICC5	C-5
ICC6	C-6
ICC7	C-7
ICC8	C-8
ICC9	C-9
ICC11	C-11
ICC12	C-12
ICC13	C-13
ICC15	C-15
ICD1	D-1
ICD2	D-2
ICD4	D-4
ICD5	D-5
ICD6	D-6
ICD7	D-7
ICD8	D-8
ICD9	D-9
ICD11	D-11
ICD12	D-12
ICD13	D-13
ICE1	E-1
ICE2	E-2
ICE5	E-5
ICE7	R-7
ICE9	E-9
ICE10	E-10
ICE12	E-12
ICE14	E-14
ICE15	E-15
ICF1	F-1
ICF2	F-2
ICF5	F-5
ICF9	F-9
ICF10	F-10
ICF13	F-13
ICF14	F-14
ICF15	F-15
ICG5	G-5
ICG7	G-7
ICG8	G-8
ICG9	G-9
ICG13	G-13
ICG14	G-14
ICG15	G-15
ICH1	H-1
ICH2	H-2
ICH6	H-6
ICH7	H-7
ICH8	H-8
ICH9	H-9
ICH12	H-12
ICH13	H-13
ICH14	H-14
ICH15	H-15
ICJ1	J-1
ICJ2	J-2
ICJ3	J-3
ICJ4	J-4
ICJ5	J-5
ICJ6	J-6
ICJ7	J-7
ICJ8	J-8
ICJ9	J-9
ICJ10	J-10
ICJ12	J-12
ICJ13	J-13
ICJ14	J-14
ICJ15	J-15
ICK3	K-3
ICK4	K-4
ICK5	K-5
ICK6	K-6
ICK8	K-8
ICK10	K-10
ICK11	K-11
ICK12	K-12
ICK13	K-13
ICK14	K-14
ICK15	K-15
ICL2	L-2
ICL3	L-3
ICL4	L-4
ICL5	L-5
ICL7	L-7
ICL9	L-9
ICL11	L-11
ICL12	L-12
ICL13	L-13
ICL14	L-14
ICL15	L-15
ICM3	M-3
ICM4	M-4
ICM7	M-7
ICM11	M-11
ICM12	M-12
ICM13	M-13
ICM14	M-14
ICM15	M-15
ICN2	N-2
ICN3	N-3
ICN4	N-4
ICN5	N-5
ICN6	N-6
ICN10	N-10
ICN11	N-11
ICN12	N-12
ICN13	N-13
ICN14	N-14
ICN15	N-15
ICP1	P-1
ICP2	P-2
ICP3	P-3
ICP4	P-4
ICP5	P-5
ICP7	P-7
ICP10	P-10
ICP11	P-11
ICP12	P-12
ICQ3	Q-3
ICQ10	Q-10
ICQ12	Q-12
Q001	B-6
Q002	B-6
Q003	B-7
Q004	C-14
Q005	C-14
Q006	G-5
Q007	H-5
Q008	H-5
Q009	H-5
Q010	H-5
Q011	G-6
Q012	G-6
Q013	L-9
Q014	M-9
Q015	M-9
RB001	A-10
RB002	D-2
RB003	F-1
RB004	H-2
RB005	K-1
RB006	L-1
RB007	L-2
RB008	Q-2
RB009	Q-4
RB010	Q-4
RB011	G-9
RB012	J-6
RB013	K-9
RB015	P-10
RB016	Q-10
RB017	Q-11
RV001	H-4
RV002	H-4
RV003	H-4
SW001	A-10
SW002	A-11
SW003	A-13
SW004	A-13
SW005	D-3
SW006	F-3
SW007	G-1
SW008	G-2
SW009	J-7
SW010	K-7
TP001	B-2
TP002	B-5
TP003	A-6
TP004	A-12
TP005	B-11
TP006	C-11
TP007	D-13
TP008	D-8
TP009	E-9
TP010	F-5
TP011	G-4
TP012	F-9
TP013	J-5
TP014	J-8
TP015	J-8
TP016	J-11
TP017	J-11
TP018	K-9
TP019	L-10
TP020	N-10
TP021	N-8
TP022	P-8
TP023	E-13
TP024	G-13
TP025	G-13
TP026	H-13
TP027	H-15
TP028	L-12
TP029	L-13
TP030	L-14
TP031	M-13
TP032	N-13
TP033	N-13
VXO001	A-7
VXO002	A-8
VXO003	A-9
X001	E-8
X002	E-6
X003	E-4

CS-24 BOARD (1-627-099-12)
Component Side

S/N; 10001 TO 10800


A
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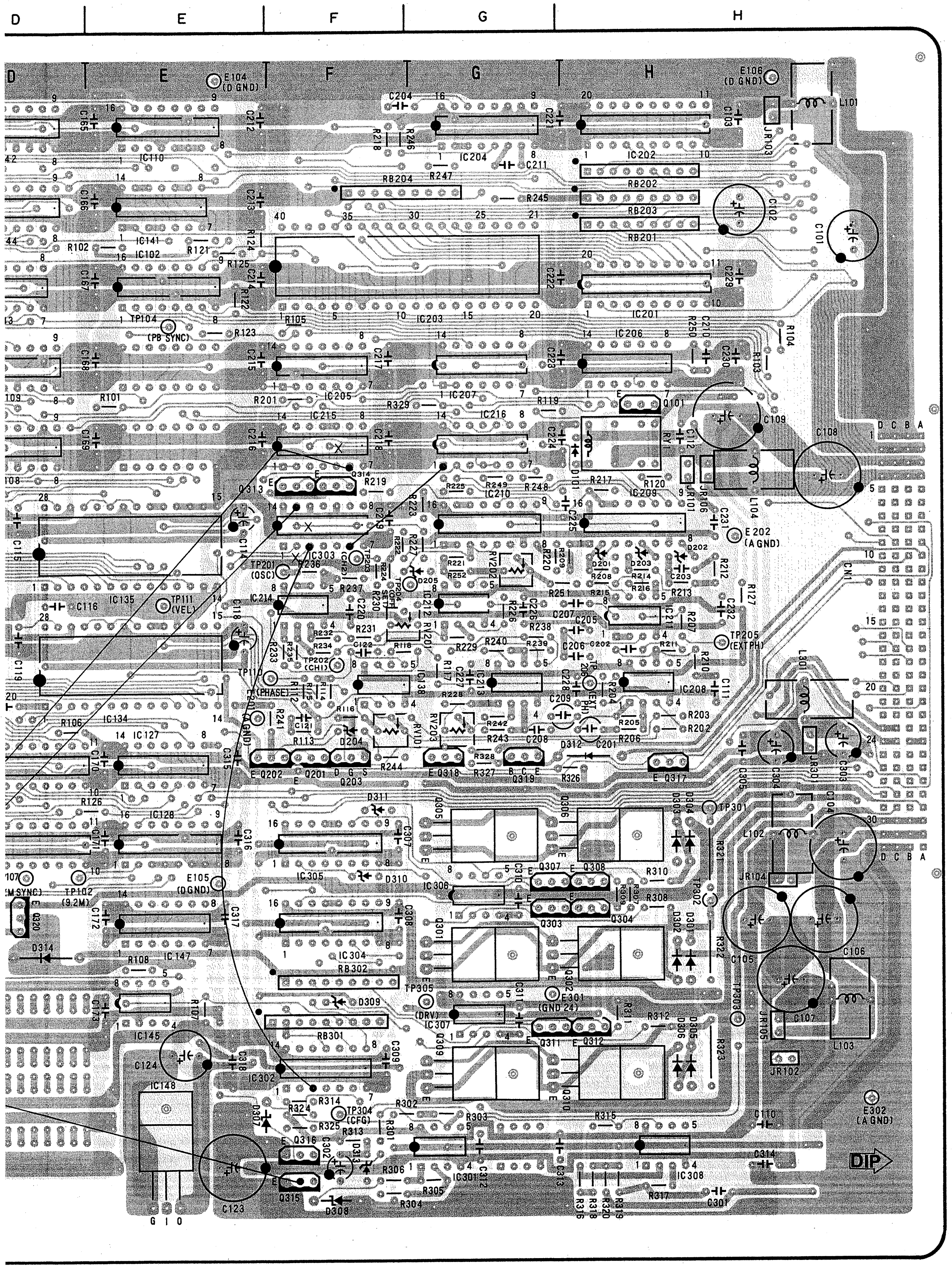
14
E101 (D GND)
E104 (D GND)
E106 (D GND)
E102 (D GND)
E103 (D GND)
E105 (D GND)
E202 (A GND)
E301 (GND 24)
E302 (A GND)
TP101 (S SYNC)
TP104 (PB SYNC)
TP105 (CFG)
TP103 (CFG)
TP107 (M SYNC)
TP102 (9.2M)
TP111 (VEL)
TP201 (OSC)
TP202 (CH1)
TP110 (PHASE)
TP205 (EXTPH)
TP301
TP304 (CFG)
TP305 (DRV)
L101
L102
L103
L104
L301
CN1
IC217
IC148
DIP
SONY MADE IN JAPAN
CS-24 1-627-099-12
LOT NO.
G I O

■ SOLDER SIDE PATTERN

Applied Serial No.10101 to	
Jumpers have been soldered or cut.	R3 R3

Applied Serial No. 10301 ar	
Jumpers have been soldered or cut.	IC3 IC3 IC3 IC2 IC2 IC2 IC2 IC2 IC2 IC2 IC2 IC3 IC3 IC3
Parts that have been added.	C1 IC2



Applied Serial No.10101 to 10210	
Jumpers have been soldered or cut.	R332 -×- C306 R332 (−side of C306) −IC309-15

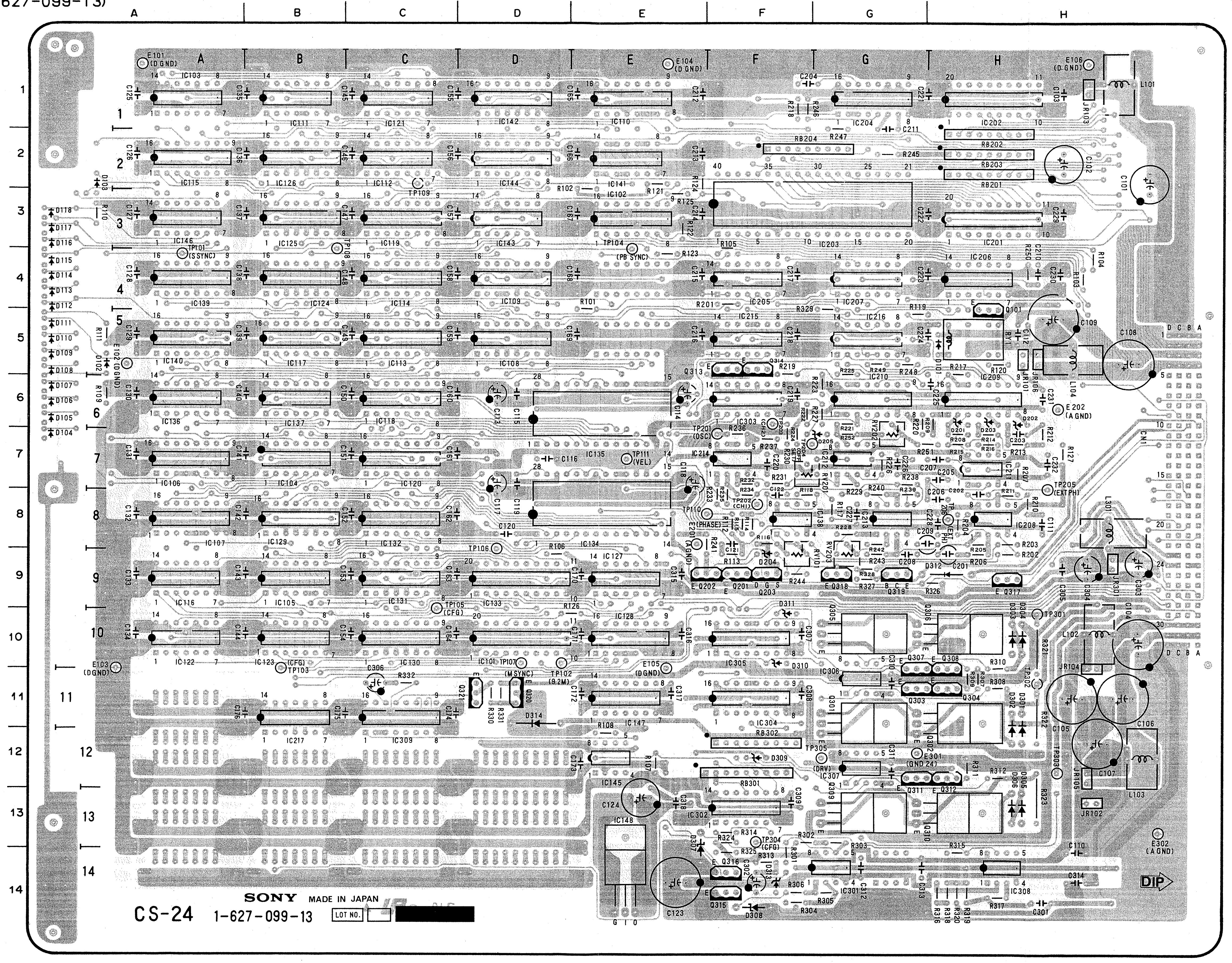
Applied Serial No. 10301 and higher	
Jumpers have been soldered or cut.	IC303-3 -×- IC302-13 IC303-5 -×- IC216-1 IC303-13 -×- IC215-6 IC215-6 — IC217-2 IC217-1 — Q315 collector IC217-4 — IC217-7 IC217-5 — IC217-7 IC217-9 — IC217-7 IC217-10 — IC217-7 IC217-12 — IC217-7 IC217-13 — IC217-7 IC303-3 — IC302-3 IC303-6 — IC216-1 IC303-13 — IC217-3
Parts that have been added.	C174, 175, 176 IC217

D101	H-5
D102	A-5
D103	A-2
D104	A-7
D105	A-6
D106	A-6
D107	A-6
D108	A-5
D109	A-5
D110	A-5
D111	A-5
D112	A-4
D113	A-4
D114	A-4
D115	A-4
D116	A-3
D117	A-3
D118	A-3
D201	H-6
D202	H-6
D203	H-6
D204	F-9
D205	G-7
D301	H-12
D302	H-12
D303	H-10
D304	H-10
D305	H-13
D306	H-13
D307	E-14
D308	F-14
D309	F-12
D310	F-10
D311	F-10
D312	H-9
D313	F-14
D314	D-11
E101	A-1
E102	A-5
E103	A-10
E104	E-1
E105	E-10
E106	H-1
E201	E-8
E202	H-6
E301	G-12
E302	H-13
IC101	D-10
IC102	E-3
IC103	A-1
IC104	B-7
IC105	B-9
IC106	A-7
IC107	A-8
IC108	D-5
IC109	D-4
IC110	E-1
IC111	B-1
IC112	C-2
IC113	C-5
IC114	C-4
IC115	A-2
IC116	A-9
IC117	B-5
IC118	C-6
IC119	C-3
IC120	C-7
IC121	C-1
IC122	A-10
IC123	B-10
IC124	B-4
IC125	B-3
IC126	B-2
IC127	E-9
IC128	E-10
IC129	B-8
IC130	C-10
IC131	C-9
IC132	C-8
IC133	D-9
IC134	E-8
IC135	E-6
IC136	A-6
IC137	B-6
IC138	A-4
IC139	A-5
IC140	A-5
IC141	E-2
IC142	D-1
IC143	D-3
IC144	D-2
IC145	E-12
IC146	A-3
IC147	E-11
IC148	E-14
IC201	H-3
IC202	H-1
IC203	F-3
IC204	G-1
IC205	F-4
IC206	H-4
IC207	G-4
IC208	H-8
IC209	H-6
IC210	G-6
IC211	H-7
IC212	G-7
IC213	G-8
IC214	F-7
IC215	F-5
IC216	G-5
IC301	G-14
IC302	F-13
IC303	F-6
IC304	F-11
IC305	F-10
IC306	G-11
IC307	G-12
IC308	H-14
IC309	C-11
Q101	H-4
Q201	F-9
Q202	F-9
Q203	F-9
Q219	F-5
Q301	G-11
Q302	H-11
Q303	G-11
Q304	H-11
Q305	G-10
Q307	G-10
Q309	G-13
Q310	H-13
Q311	G-12
Q312	H-12
Q313	F-5
Q315	F-14
Q316	F-14
Q317	H-9
Q318	G-9
Q319	G-9
Q320	D-11
Q321	D-11
RB201	H-2
RB202	H-2
RB203	H-2
RB204	F-2
RB301	F-12
RB302	F-12
RV101	F-9
RV201	F-7
RV202	G-7
RV203	G-9
RY-1	H-5
TP101	A-4
TP102	D-10
TP103	B-10
TP104	E-3
TP105	C-9
TP106	D-8
TP107	D-10
TP108	B-3
TP109	C-2
TP110	F-8
TP111	E-7
TP201	F-7
TP202	F-8
TP203	F-6
TP204	G-7
TP205	H-7
TP206	H-8
TP301	H-10
TP302	H-11
TP303	H-12
TP304	F-13
TP305	G-12

S/N; 10801 AND HIGHER

CS-24 BOARD (1-627-099-13)

Component Side


A
B
C
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G
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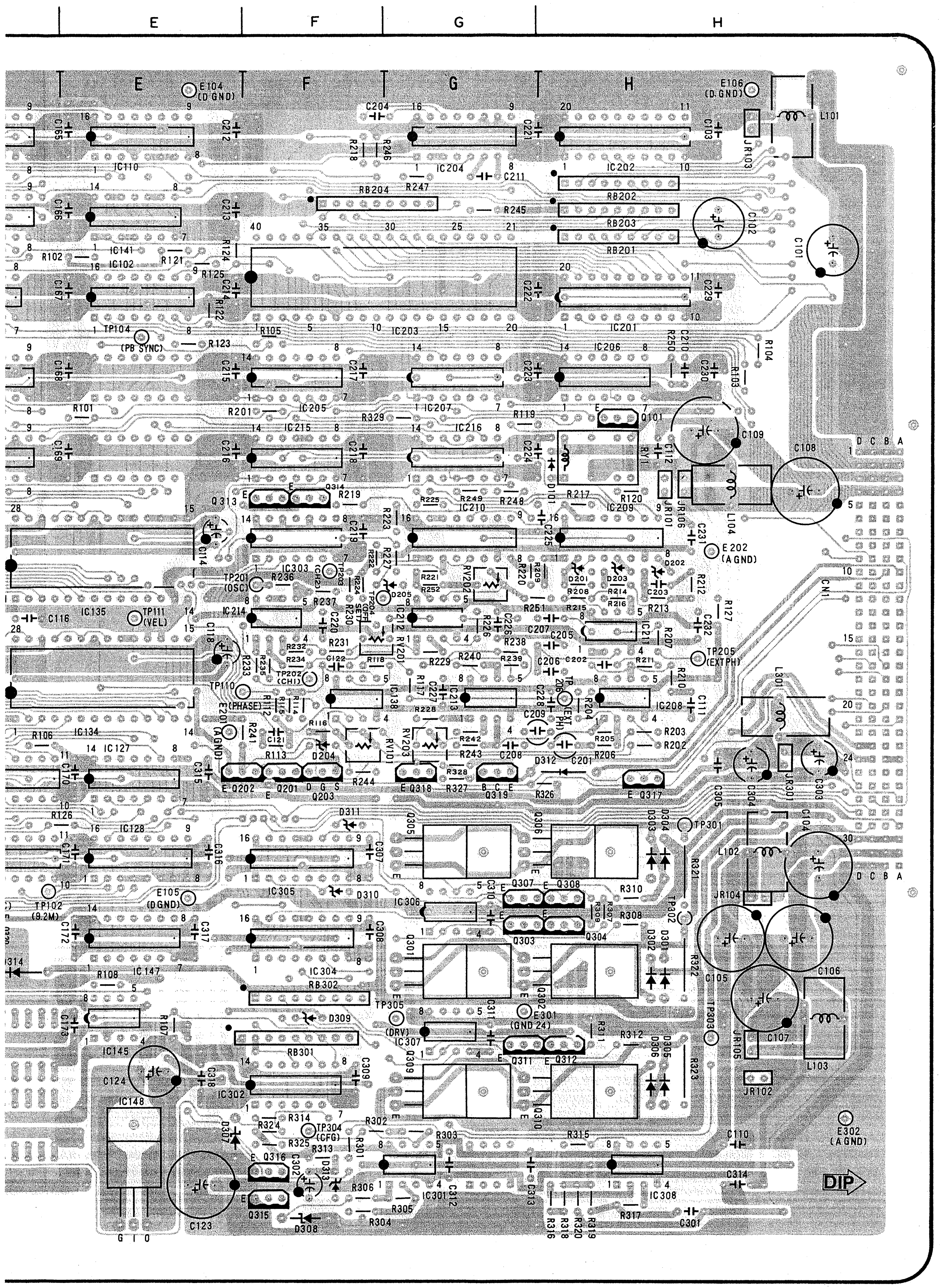
13
14
E101 (D GND)
E104 (D GND)
E106 (D GND)
E102 (D GND)
E103 (DGND)
E105 (DGND)
E202 (A GND)
E302 (A GND)
E301 (GND 24)
TP101 (S SYNC)
TP104 (PB SYNC)
TP111 (VEL)
TP201 (OSC)
TP202 (CH1)
TP110 (PHASE)
TP205 (EXTPH)
TP105 (CFG)
TP103 (CFG)
TP107 (M SYNC)
TP102 (9.2M)
TP304 (CFG)
TP305 (DRV)
IC148
CN1
L101
L102
L103
L104
L301
DIP
CS-24
1-627-099-13
SONY
MADE IN JAPAN
LOT NO.

■ SOLDER SIDE PATTERN

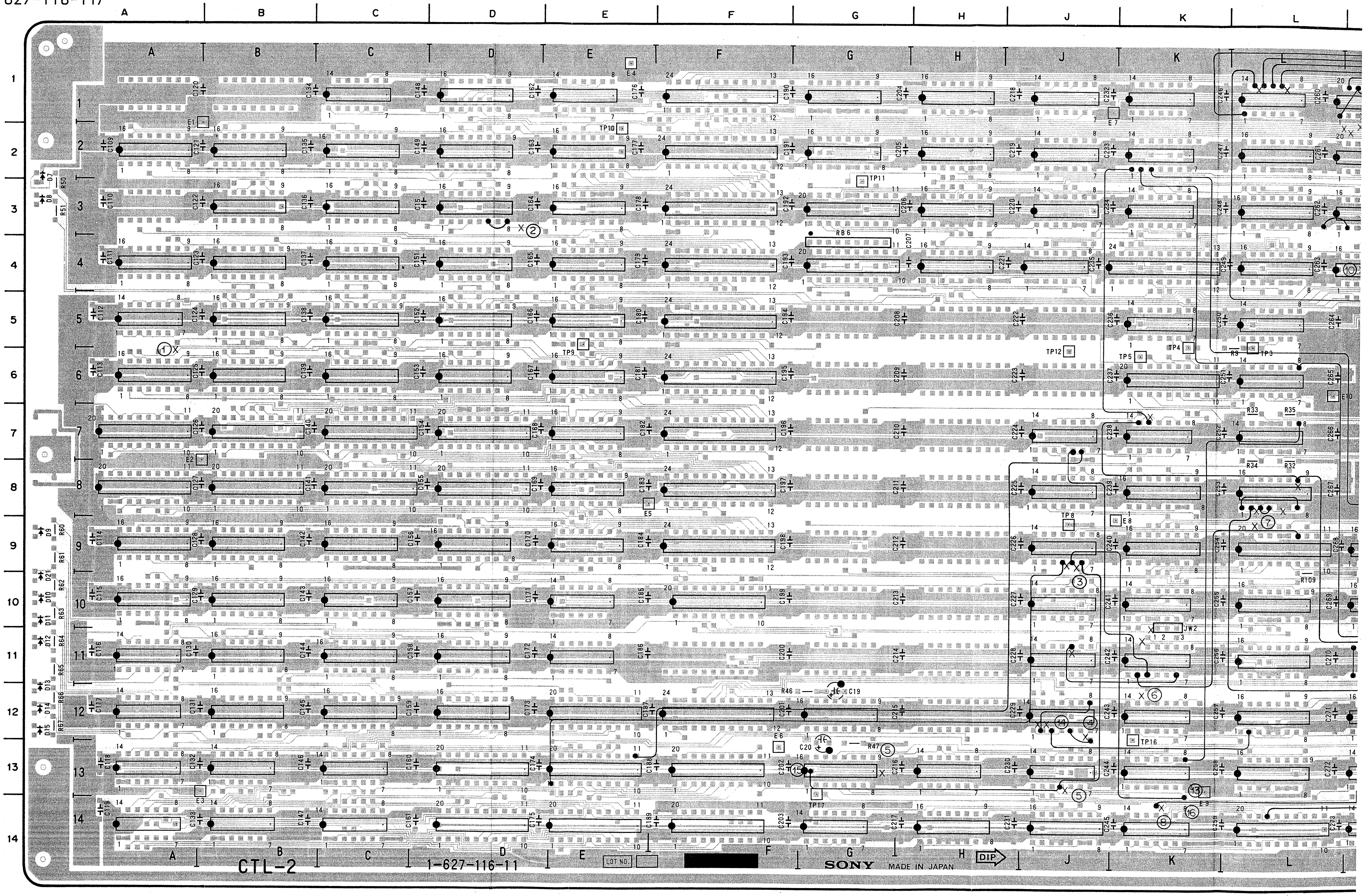

E
F
G
H
E104 (D GND)
E106 (D GND)
TP104 (PB SYNC)
TP111 (VEL)
TP110
TP201 (OSC)
TP202 (CH1)
TP205 (EXTPH)
E201 (PHASE)
E202 (A GND)
E105 (D GND)
TP102 (9.2M)
TP305 (DRV)
E301 (GND 24)
TP304 (CFG)
E302 (A GND)
TP301
TP302
TP303
RY1
L101
L102
L103
L104
L301
CN1
D C B A
DIP

D101	H-5
D102	A-5
D103	A-2
D104	A-7
D105	A-6
D106	A-6
D107	A-6
D108	A-5
D109	A-5
D110	A-5
D111	A-5
D112	A-4
D113	A-4
D114	A-4
D115	A-4
D116	A-3
D117	A-3
D118	A-3
D201	H-6
D202	H-6
D203	H-6
D204	F-9
D205	G-7
D301	H-12
D302	H-12
D303	H-10
D304	H-10
D305	H-13
D306	H-13
D307	E-14
D308	F-14
D309	F-12
D310	F-10
D311	F-10
D312	H-9
D313	F-14
D314	D-11
E101	A-1
E102	A-5
E103	A-10
E104	E-1
E105	E-10
E106	H-1
E201	E-8
E202	H-6
E301	G-12
E302	H-13
IC101	D-10
IC102	E-3
IC103	A-1
IC104	B-7
IC105	B-9
IC106	A-7
IC107	A-8
IC108	D-5
IC109	D-4
IC110	E-1
IC111	B-1
IC112	C-2
IC113	C-5
IC114	C-4
IC115	A-2
IC116	A-9
IC117	B-5
IC118	C-6
IC119	C-3
IC120	C-7
IC121	C-1
IC122	A-10
IC123	B-10
IC124	B-4
IC125	B-3
IC126	B-2
IC127	E-9
IC128	E-10
IC129	B-8
IC130	C-10
IC131	C-9
IC132	C-8
IC133	D-9
IC134	E-8
IC135	E-6
IC136	A-6
IC137	B-6
IC138	F-8
IC139	F-4
IC140	A-5
IC141	E-2
IC142	D-1
IC143	D-3
IC144	D-2
IC145	E-12
IC146	A-3
IC147	E-11
IC148	E-14
IC201	H-3
IC202	H-1
IC203	F-3
IC204	G-1
IC205	F-4
IC206	H-4
IC207	G-4
IC208	H-8
IC209	H-6
IC210	G-6
IC211	H-7
IC212	G-7
IC213	G-8
IC214	F-7
IC215	F-5
IC216	G-5
IC217	B-1
IC301	G-14
IC302	F-13
IC303	F-6
IC304	F-11
IC305	F-10
IC306	G-11
IC307	G-12
IC308	H-14
IC309	C-11
Q101	H-4
Q201	F-9
Q202	F-9
Q203	F-9
Q219	F-5
Q301	G-11
Q302	H-11
Q303	G-11
Q304	H-11
Q305	G-10
Q306	H-10
Q307	G-10
Q308	H-10
Q309	G-13
Q310	H-13
Q311	G-12
Q312	H-12
Q313	F-5
Q314	F-5
Q315	F-14
Q316	F-14
Q317	H-9
Q318	G-9
Q319	G-9
Q320	D-11
Q321	D-11
RB201	H-2
RB202	H-2
RB203	H-2
RB204	F-2
RB301	F-12
RB302	F-12
RV101	F-9
RV201	F-7
RV202	G-7
RV203	G-9
RY-1	H-5
TP101	A-4
TP102	D-10
TP103	B-10
TP104	E-3
TP105	C-9
TP106	D-8
TP107	D-10
TP108	B-3
TP109	C-2
TP110	F-8
TP111	E-7
TP201	F-7
TP202	F-8
TP203	F-6
TP204	G-7
TP205	H-7
TP206	H-8
TP301	H-10
TP302	H-11
TP303	H-12
TP304	F-13
TP305	G-12

CARD RACK CTL-2 BOARD

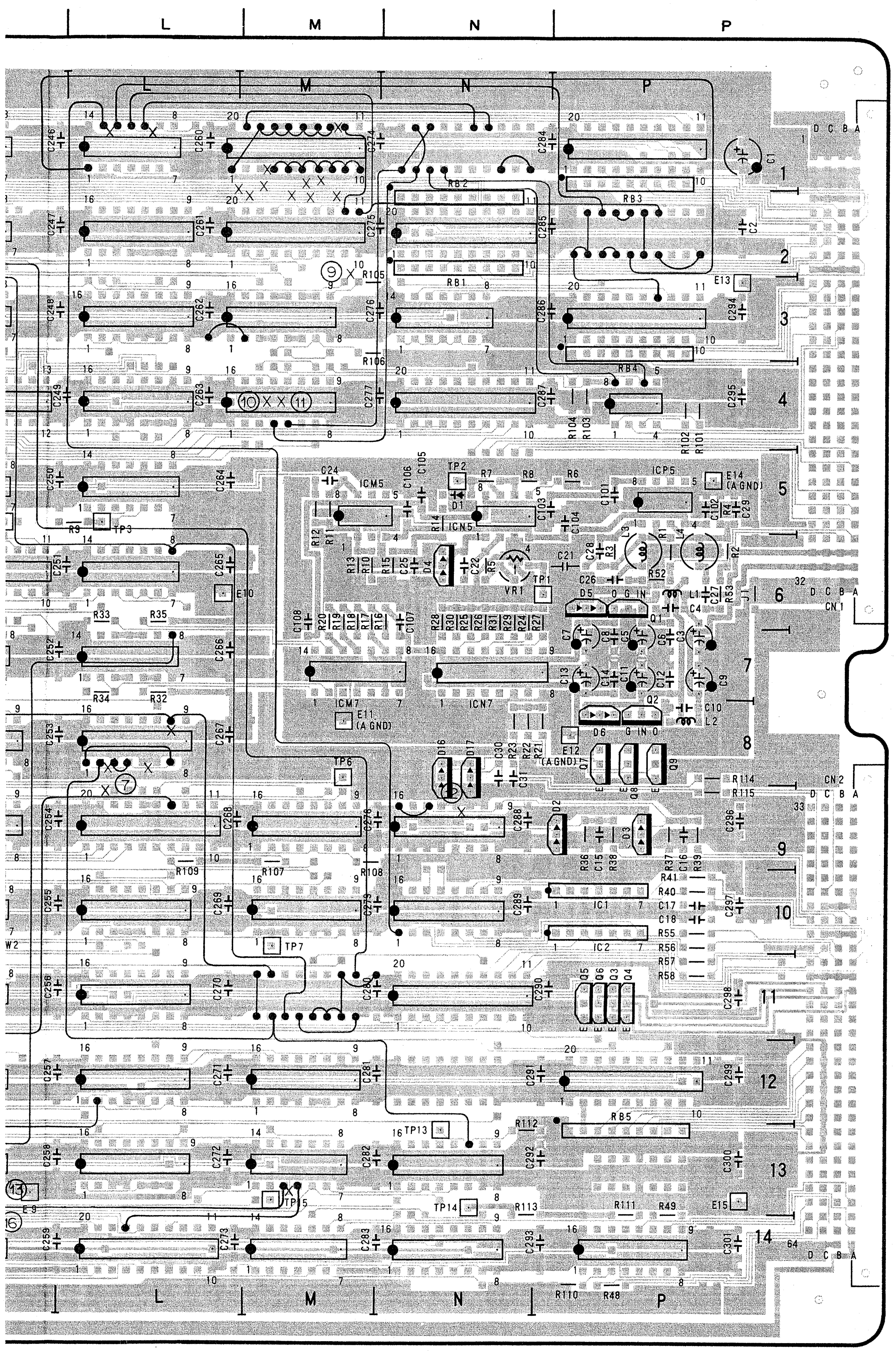
S/N; 10001 TO 10100

CTL-2 BOARD (1-627-116-11)
Component Side


CTL-2
1-627-116-11
LOT NO.
SONY
MADE IN JAPAN
DIP
A B C D E F G H J K L
1 2 3 4 5 6 7 8 9 10 11 12 13 14

■ SOLDER SIDE PATTERN

CARD RACK   CTL-2 BOARD



Applied Serial No. Up to 10015	
Jumpers that have been soldered or cut.	ICA5-6 ⇸ T.H. (① See the board.) ICD3-6 ⇸ T.H. (② See the board.) ICJ9-4 ⇸ ICJ9-5 ICJ9-5 ⇸ T.H. (③ See the board.) ICJ12-2 ⇸ GND ICJ12-3 ⇸ GND ICJ12-8 ⇸ T.H. (④ See the board.) ICJ13-4 ⇸ ICC1-2 (near ICG13-8, ⑤ see the board.) ICK7-13 ⇸ ICK7-11 ICK13-12 ⇸ T.H. (⑥ See the board.) ICL1-11 ⇸ ICL1-9 ICL1-13 ⇸ ICL1-11 ICL8-1 ⇸ ICL8-4 ICL8-2 ⇸ T.H. (⑦ See the board.) ICL8-4 ⇸ ICL8-7 ICL8-10 ⇸ VCC ICL14-17 ⇸ T.H. (⑧ See the board.) ICM1-3 ⇸ ICM1-4 ICM1-6 ⇸ ICM2-5 ICM1-7 ⇸ ICM2-6 ICM1-9 ⇸ ICM2-9 ICM1-12 ⇸ ICM1-13 ICM1-13 ⇸ ICM2-14 ICM1-14 ⇸ ICM2-15 ICM1-17 ⇸ ICM2-18 ICM1-18 ⇸ ICM2-19 ICM1-19 ⇸ ICM3-2 ICM2-11 ⇸ T.H. (⑨ See the board.) ICM4-4 ⇸ T.H. (⑩ See the board.) ICM4-5 ⇸ T.H. (⑪ See the board.) ICM13-3 ⇸ GND ICN9-9 ⇸ ICN9-14 (⑫ See the board.) ICJ11-10 ⇸ VCC ICK11-2 ⇸ T.H. ICK11-3 ⇸ T.H. ICD3-6 — ICD3-8 ICJ7-6 — ICE13-11 ICJ9-4 — ICE13-1 ICJ9-5 — T.H. (near ICK13-7, ⑬ see the board.) ICJ9-6 — ICJ13-4 ICJ12-2 — ICJ12-8 ICJ12-3 — ICL12-2 ICJ12-5 — T.H. (near ICJ12-7, ⑭ see the board.) ICJ13-4 — T.H. (near ICG13-1, ⑮ see the board.) ICK2-2 — ICL6-8 ICK2-3 — ICM11-9

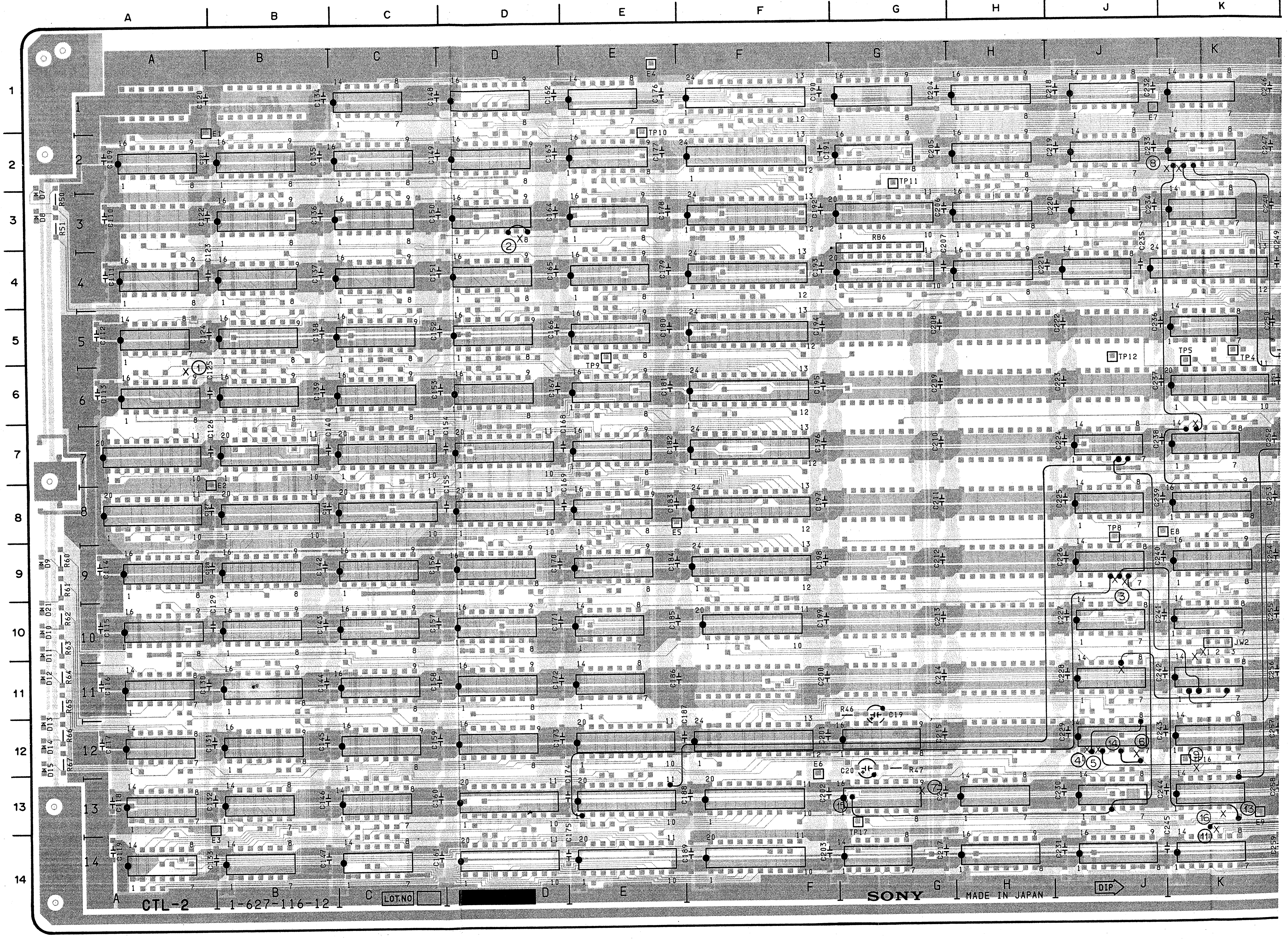
T.H. = Through Hole

Applied Serial No. Up to 10015	
Jumpers that have been soldered or cut.	ICK7-12 — ICK2-1 ICK13-8 — ICL7-8 ICL1-10 — ICN1-11 ICL1-13 — ICN10-1 ICL6-8 — ICM11-3 ICL8-1 — ICL8-7 ICL8-3 — ICL8-4 ICL8-10 — ICK7-13 ICM1-1 — ICM1-18 ICM1-4 — ICM1-5 ICM1-5 — ICM1-6 ICM1-6 — ICM1-7 ICM1-7 — ICM1-8 ICM1-8 — ICM1-9 ICM1-9 — ICM-10 ICM1-12 — ICM2-12 ICM1-14 — ICM1-13 ICM1-15 — ICM1-14 ICM1-16 — ICM1-15 ICM1-17 — ICM1-16 ICM1-18 — ICM1-17 ICM1-19 — ICN1-10 ICM2-11 — ICL1-11 ICM3-2 — GND ICM11-1 — ICM11-16 ICM11-2 — ICL8-2 ICM11-4 — ICM11-8 ICM11-5 — ICM11-6 ICM11-6 — ICM11-7 ICM11-7 — ICM11-10 ICM11-10 — VCC ICM11-15 — ICL8-10 ICM13-3 — T.H. (near ICK14-11, ⑯ see the board.) ICM13-4 — ICL14-17 ICN1-1 — ICM4-5 ICN1-2 — ICM4-4 ICN1-3 — ICP4-8 ICN1-4 — ICP4-6 ICN1-8 — GND ICN1-14 — ICN1-1 ICN1-15 — ICN1-2 ICN9-14 — ICN9-16 ICN13-11 — ICM11-2 ICP2-1 — ICP3-14 ICP2-1 — ICP2-2 ICP2-2 — ICP2-13 ICP2-3 — ICP2-4 ICP2-5 — ICL1-1 ICP2-6 — ICP2-9 ICP2-7 — GND ICP2-8 — ICM2-11 ICP2-10 — ICP2-11 ICP2-12 — ICL1-12 ICL9-14 — ICK11-2 ICJ7-5 — ICK11-3 ICK11-6 — ICJ11-10

T.H. = Through Hole

CN1	P-6
CN2	P-9
D1	N-5
D2	P-9
D3	P-9
D4	N-6
D5	P-6
D6	P-8
D7	A-2
D8	A-3
D9	A-9
D10	A-10
D11	A-10
D12	A-11
D13	A-12
D14	A-12
D15	A-12
D16	N-8
D17	N-8
D21	A-10
E1	A-1
E2	A-7
E3	A-13
E4	E-1
E5	E-8
E6	F-13
E7	J-1
E8	K-8
E9	K-13
E10	L-6
E11	M-8
E12	P-8
E13	P-3
E14	P-5
E15	P-13
IC1	P-10
IC2	P-10
ICA2	A-2
ICA4	A-4
ICA5	A-5
ICA6	A-6
ICA7	A-7
ICA8	A-8
ICA9	A-9
ICA10	A-10
ICA11	A-11
ICA12	A-12
ICA13	A-13
ICA14	A-14
ICB2	B-2
ICB3	B-3
ICB4	B-4
ICB5	B-5
ICB6	B-6
ICB7	B-7
ICB8	B-8
ICB9	B-9
ICB10	B-10
ICB11	B-11
ICB12	B-12
ICB13	B-13
ICB14	B-14
ICC1	C-1
ICC2	C-2
ICC3	C-3
ICC4	C-4
ICC5	C-5
ICC6	C-6
ICC7	C-7
ICC8	C-8
ICC9	C-9
ICC10	C-10
ICC11	C-11
ICC12	C-12
ICC13	C-13
ICC14	C-14
ICD1	D-1
ICD2	D-2
ICD3	D-3
ICD4	D-4
ICD5	D-5
ICD6	D-6
ICD7	D-7
ICD8	D-8
ICD9	D-9
ICD10	D-10
ICD11	D-11
ICD12	D-12
ICD13	D-13
ICD14	D-14
ICE1	E-1
ICE2	E-2
ICE3	E-3
ICE4	E-4
ICE5	E-5
ICE6	E-6
ICE7	E-7
ICE8	E-8
ICE9	E-9
ICE10	E-10
ICE11	E-11
ICE12	E-12
ICE13	E-13
ICE14	E-14
ICF1	F-1
ICF2	F-2
ICF3	F-3
ICF4	F-4
ICF5	F-5
ICF6	F-6
ICF7	F-7
ICF8	F-8
ICF9	F-9
ICF10	F-10
ICF12	F-12
ICF13	F-13
ICF14	F-14
ICG1	G-1
ICG2	G-2
ICG3	G-3
ICG4	G-4
ICG12	G-12
ICG13	G-13
ICG14	G-14
ICH1	H-1
ICH2	H-2
ICH3	H-3
ICH4	H-4
ICH13	H-13
ICH14	H-14
ICJ1	J-1
ICJ2	J-2
ICJ3	J-3
ICJ4	J-4
ICJ7	J-7
ICJ8	J-8
ICJ9	J-9
ICJ10	J-10
ICJ11	J-11
ICJ12	J-12
ICJ13	J-13
ICJ14	J-14
ICK1	K-1
ICK2	K-2
ICK3	K-3
ICK4	K-4
ICK5	K-5
ICK6	K-6
ICK7	K-7
ICK8	K-8
ICK9	K-9
ICK10	K-10
ICK11	K-11
ICK12	K-12
ICK13	K-13
ICK14	K-14
ICL1	L-1
ICL2	L-2
ICL3	L-3
ICL4	L-4
ICL5	L-5
ICL6	L-6
ICL7	L-7
ICL8	L-8
ICL9	L-9
ICL10	L-10
ICL11	L-11
ICL12	L-12
ICL13	L-13
ICL14	L-14
ICM1	M-1
ICM2	M-2
ICM3	M-3
ICM4	M-4
ICM5	M-5
ICM7	M-7
ICM9	M-9
ICM10	M-10
ICM12	M-12
ICM13	M-13
ICM14	M-14
ICN2	N-2
ICN3	N-3
ICN4	N-4
ICN5	N-5
ICN7	N-7
ICN9	N-9
ICN10	N-10
ICN11	N-11
ICN13	N-13
ICN14	N-14
ICP1	P-1
ICP3	P-3
ICP4	P-4
ICP5	P-5
ICP12	P-12
ICP14	P-14
Q1	P-6
Q2	P-8
Q3	P-11
Q4	P-11
Q5	P-11
Q6	P-11
Q7	P-8
Q8	P-8
Q9	P-8
RB1	N-2
RB2	N-2
RB3	P-1
RB4	P-3
RB5	P-13
RB6	G-4
TP1	N-6
TP2	N-5
TP3	L-5
TP4	K-5
TP5	K-6
TP6	M-8
TP7	M-10
TP8	J-9
TP9	E-5
TP10	E-2
TP11	G-2
TP12	J-5
TP13	N-13
TP14	N-13
TP15	M-13
TP16	K-12
TP17	G-13
VR1	N-6

CTL-2 BOARD (1-627-116-12) S/N; 10101 TO 10200
Component Side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CTL-2
1-627-116-12
LOT.NO
SONY
MADE IN JAPAN
DIP
TP4
TP5
TP6
TP9
TP10
TP11
TP12
TP17
JW2
RB6
E1
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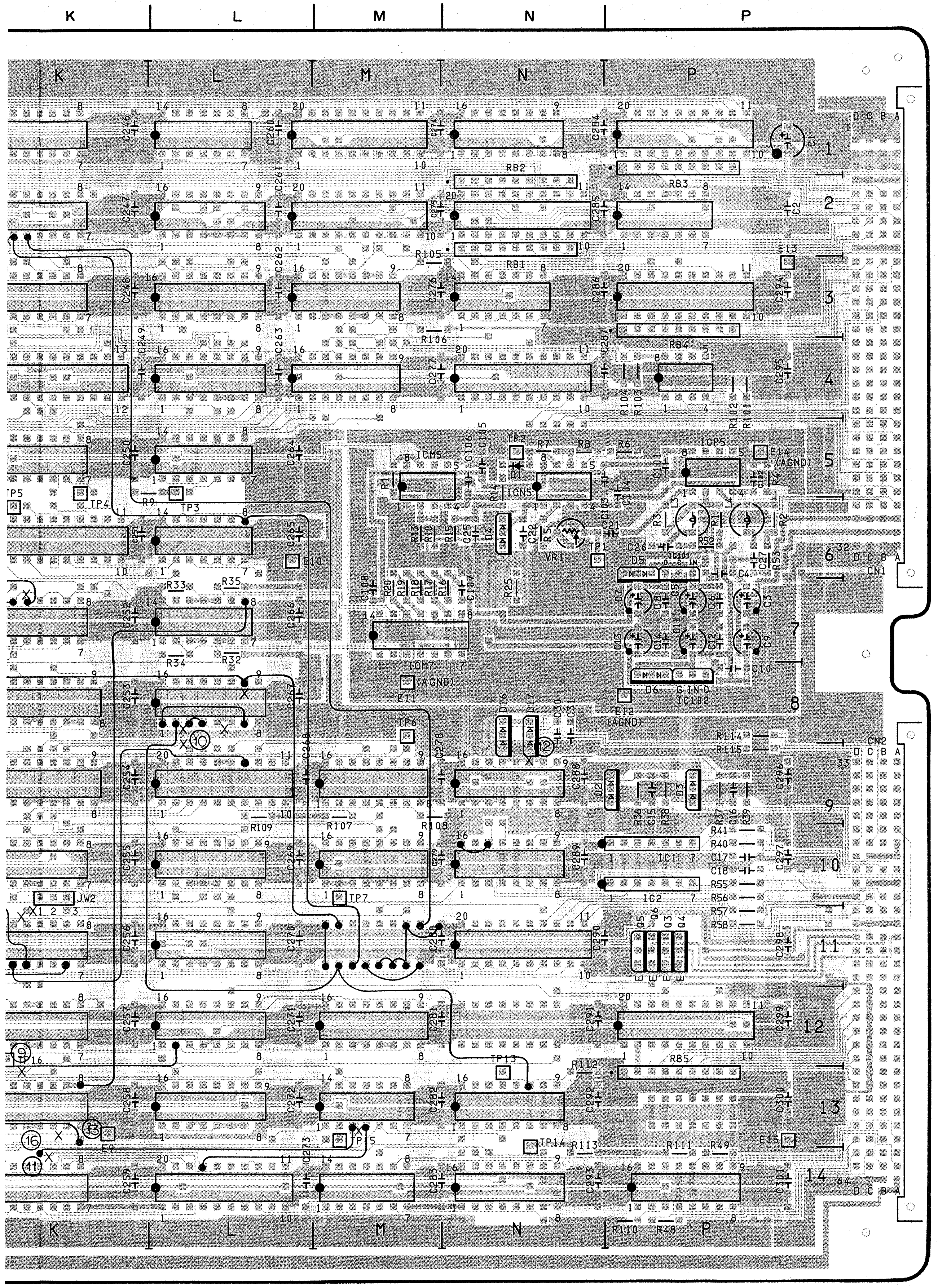
E3
E4
E5
E6
E7
E8
E9

■ SOLDER SIDE PATTERN



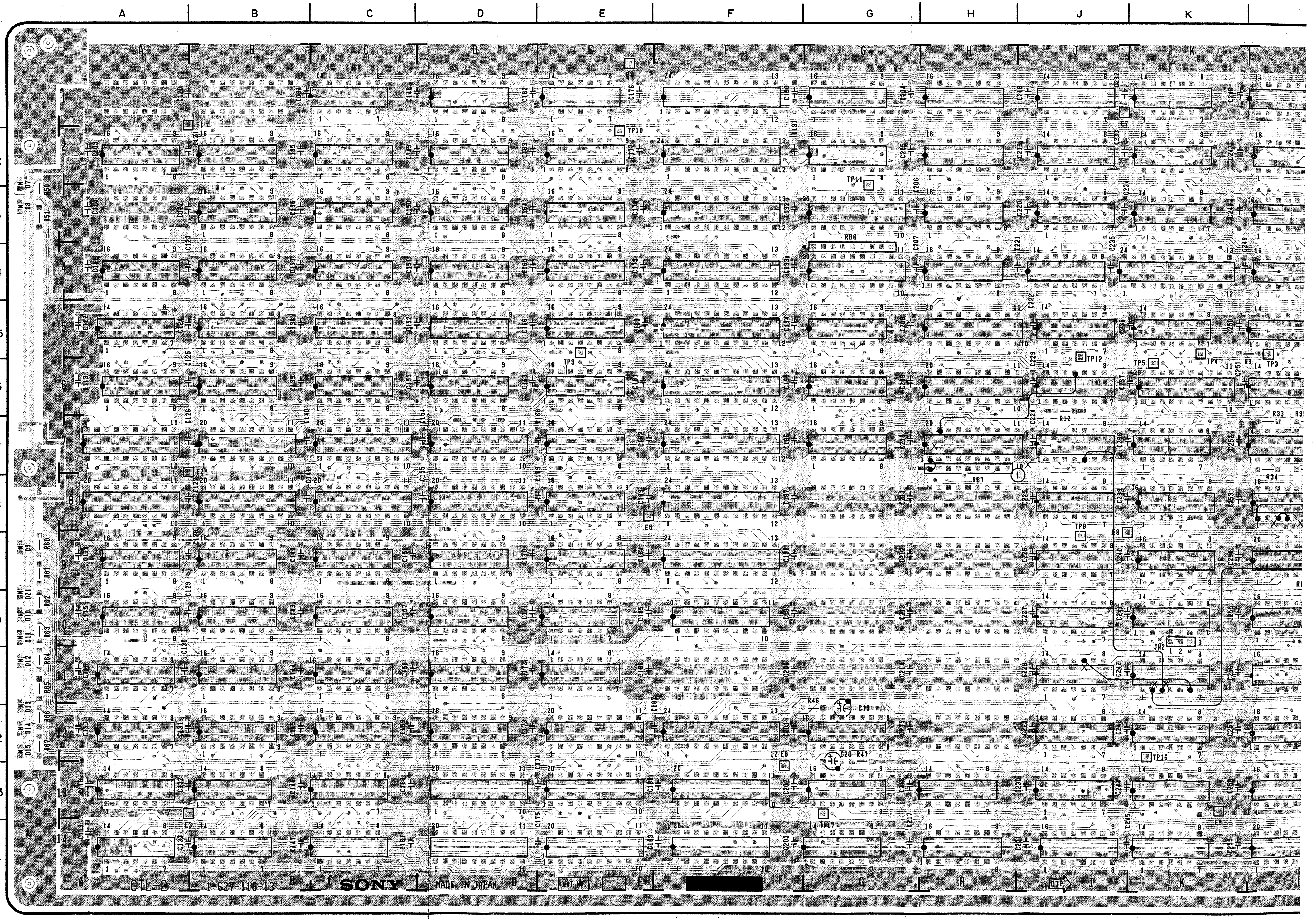
Applied Serial No. 10101 and higher	
Jumpers that have been soldered or cut.	ICA5-6 ⋇ T.H. (① See the board.) ICD3-6 ⋇ T.H. (② See the board.) ICJ9-4 ⋇ ICJ9-5 ICJ9-5 ⋇ T.H. (③ See the board.) ICJ12-2 ⋇ GND (④ See the board.) ICJ12-3 ⋇ GND (⑤ See the board.) ICJ12-8 ⋇ T.H. (⑥ See the board.) ICJ13-4 ⋇ ICC1-2 (near ICG13-8, ⑦ see the board.) ICK2-1 ⋇ ICK2-2 ICK2-1 ⋇ GND (⑧ See the board.) ICK7-13 ⋇ ICK7-11 ICK13-12 ⋇ T.H. (⑨ See the board.) ICL8-1 ⋇ ICL8-4 ICL8-2 ⋇ T.H. (⑩ See the board.) ICL8-4 ⋇ ICL8-7 ICL8-10 ⋇ VCC ICL14-17 ⋇ T.H. (⑪ See the board.) ICM13-3 ⋇ GND ICN9-9 ⋇ ICN9-14 (⑫ See the board.) ICJ11-10 ⋇ VCC ICK11-2⋇T.H. ICK11-3⋇T.H. ICD3-6 — ICD3-8 ICJ7-6 — ICE13-11 ICJ9-4 — ICE13-1 ICJ9-5 — T.H. (near ICK13-7, ⑬ see the board.) ICJ9-6 — ICJ13-4 ICJ12-2 — ICJ12-8 ICJ12-3 — ICL12-2 ICJ12-5 — T.H. (near ICJ12-7, ⑭ see the board.) ICJ13-4 — T.H. (near ICG13-1, ⑮ see the board.) ICK2-2 — ICL6-8 ICK2-3 — ICM11-9 ICK7-12 — ICK2-1 ICK13-8 — ICL7-8 ICL6-8 — ICM11-3 ICL8-1 — ICL8-7 ICL8-3 — ICL8-4 ICL8-10 — ICK7-13 ICM11-1 — ICM11-16 ICM11-2 — ICL8-2 ICM11-4 — ICM11-8 ICM11-5 — ICM11-6 ICM11-6 — ICM11-7 ICM11-7 — ICM11-10 ICM11-10 — VCC ICM11-15 — ICL8-10 ICM13-3 — T.H. (near ICK14-11, ⑯ see the board.) ICM13-4 — ICL14-17 ICN9-14 — ICN9-16 ICN13-11 — ICM11-2 ICL9-14 — ICK11-2 ICJ7-5 — ICK11-3 ICK11-6 — ICK11-10
Parts that have been changed.	IC101 IC102

T.H. = Through Hole

CN1	P-6
CN2	P-8
D1	N-5
D2	P-9
D3	P-9
D4	N-6
D5	P-6
D6	P-8
D7	A-2
D8	A-3
D9	A-9
D10	A-10
D11	A-10
D12	A-11
D13	A-12
D14	A-12
D15	A-12
D16	N-8
D17	N-8
D21	A-10
E1	B-1
E2	B-7
E3	A-13
E4	E-1
E5	E-8
E6	F-13
E7	J-1
E8	K-8
E9	K-13
E10	L-6
E11	M-8
E12	P-8
E13	P-3
E14	P-5
E15	P-13
IC1	P-10
IC2	P-10
ICA2	A-2
ICA4	A-4
ICA5	A-5
ICA6	A-6
ICA7	A-7
ICA8	A-8
ICA9	A-9
ICA10	A-10
ICA11	A-11
ICA12	A-12
ICA13	A-13
ICA14	A-14
ICB2	B-2
ICB3	B-3
ICB4	B-4
ICB5	B-5
ICB6	B-6
ICB7	B-7
ICB8	B-8
ICB9	B-9
ICB10	B-10
ICB11	B-11
ICB12	B-12
ICB13	B-13
ICB14	B-14
ICC1	C-1
ICC2	C-2
ICC3	C-3
ICC4	C-4
ICC5	C-5
ICC6	C-6
ICC7	C-7
ICC8	C-8
ICC9	C-9
ICC10	C-10
ICC11	C-11
ICC12	C-12
ICC13	C-13
ICC14	C-14
ICD1	D-1
ICD2	D-2
ICD3	D-3
ICD4	D-4
ICD5	D-5
ICD6	D-6
ICD7	D-7
ICD8	D-8
ICD9	D-9
ICD10	D-10
ICD11	D-11
ICD12	D-12
ICD13	D-13
ICD14	D-14
ICE1	E-1
ICE2	E-2
ICE3	E-3
ICE4	E-4
ICE5	E-5
ICE6	E-6
ICE7	E-7
ICE8	E-8
ICE9	E-9
ICE10	E-10
ICE11	E-11
ICE12	E-12
ICE13	E-13
ICE14	E-14
ICF1	F-1
ICF2	F-2
ICF3	F-3
ICF4	F-4
ICF5	F-5
ICF6	F-6
ICF7	F-7
ICF8	F-8
ICF9	F-9
ICF10	F-10
ICF12	F-12
ICF13	F-13
ICF14	F-14
ICG1	G-1
ICG2	G-2
ICG3	G-3
ICG4	G-4
ICG12	G-12
ICG13	G-13
ICG14	G-14
ICH1	H-1
ICH2	H-2
ICH3	H-3
ICH4	H-4
ICH13	H-13
ICH14	H-14
ICJ1	J-1
ICJ2	J-2
ICJ3	J-3
ICJ4	J-4
ICJ7	J-7
ICJ8	J-8
ICJ9	J-9
ICJ10	J-10
ICJ11	J-11
ICJ12	J-12
ICJ13	J-13
ICJ14	J-14
ICK1	K-1
ICK2	K-2
ICK3	K-3
ICK4	K-4
ICK5	K-5
ICK6	K-6
ICK7	K-7
ICK8	K-8
ICK9	K-9
ICK10	K-10
ICK11	K-11
ICK12	K-12
ICK13	K-13
ICK14	K-14
ICL1	L-1
ICL2	L-2
ICL3	L-3
ICL4	L-4
ICL5	L-5
ICL6	L-6
ICL7	L-7
ICL8	L-8
ICL9	L-9
ICL10	L-10
ICL11	L-11
ICL12	L-12
ICL13	L-13
ICL14	L-14
ICM1	M-1
ICM2	M-2
ICM3	M-3
ICM4	M-4
ICM5	M-5
ICM7	M-7
ICM9	M-9
ICM10	M-10
ICM12	M-12
ICM13	M-13
ICM14	M-14
ICN1	N-1
ICN2	N-2
ICN3	N-3
ICN4	N-4
ICN5	N-5
ICN9	N-9
ICN10	N-10
ICN11	N-11
ICN13	N-13
ICN14	N-14
ICP1	P-1
ICP2	P-2
ICP3	P-3
ICP4	P-4
ICP5	P-5
ICP12	P-12
ICP14	P-14
Q3	P-11
Q4	P-11
Q5	P-11
Q6	P-11
RB1	N-2
RB2	N-2
RB3	P-1
RB4	P-3
RB5	P-13
RB6	G-4
TP1	N-6
TP2	N-5
TP3	L-5
TP4	K-5
TP5	K-6
TP6	M-8
TP7	M-10
TP8	J-9
TP9	E-5
TP10	E-2
TP11	G-2
TP12	J-6
TP13	N-13
TP14	N-14
TP15	M-13
TP16	K-12
TP17	G-13
VR1	N-6

CTL-2 BOARD (1-627-116-13)
Component Side

S/N; 10201 AND HIGHER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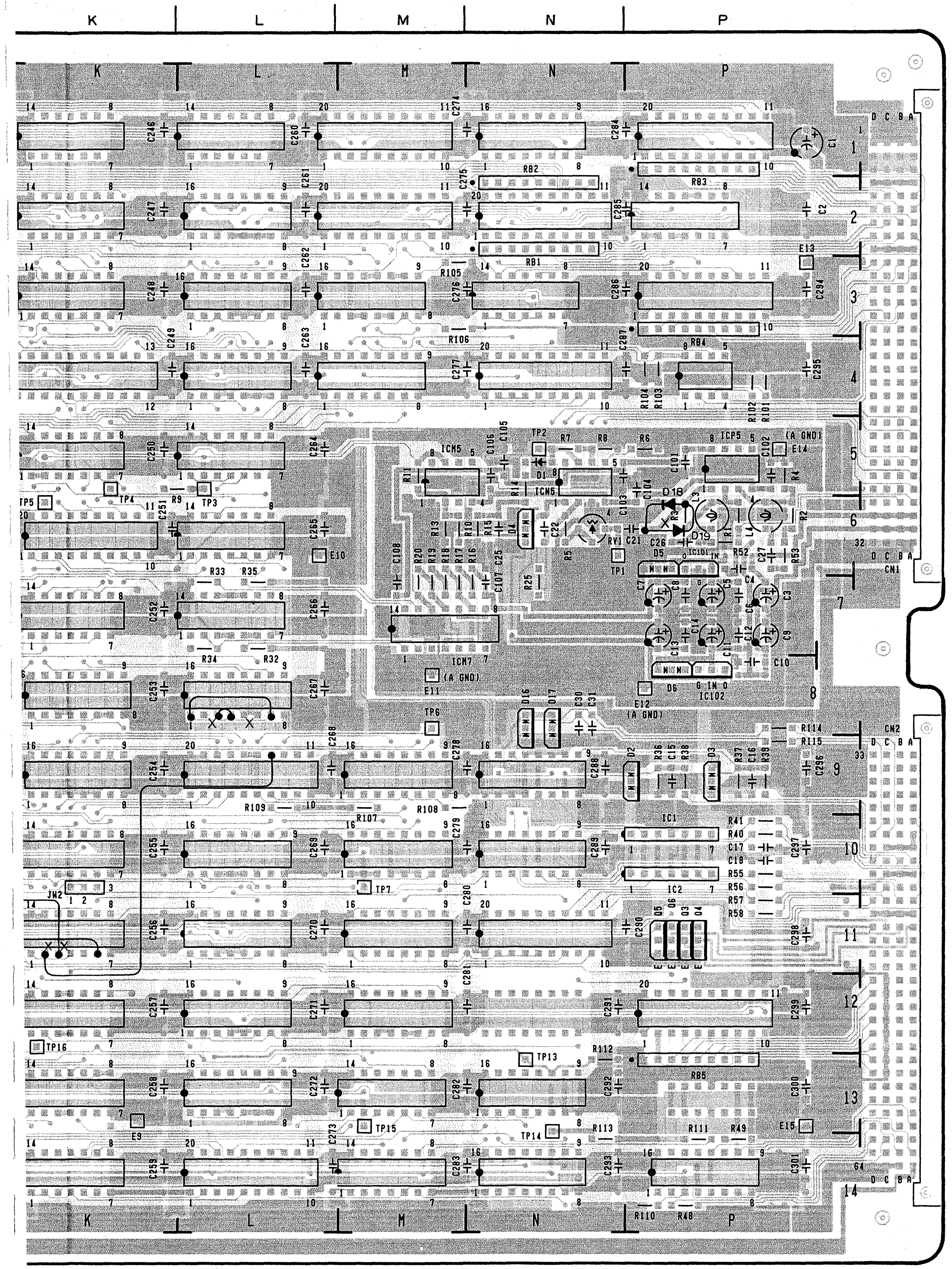
CTL-2
1-627-116-13
SONY
MADE IN JAPAN
LOT NO.
DIP
E1
E2
E3
E4
E5
E6
E7
E8
E9
TP3
TP4
TP5
TP8
TP9
TP10
TP11
TP12
TP16
TP17
JW2
RB6
RB7
R12
R33
R34
R46
R47
C19
C20

■ SOLDER SIDE PATTERN

CARD RACK　CTL-2 BOARD



Applied Serial No. 10201 and higher	
Jumpers that have been soldered or cut.	ICH7-1 -×- ICH7-19 ICH7-1 -×- T.H. (① See the board.) ICL8-1 -×- ICL8-4 ICL8-4 -×- ICL8-7 ICJ11-10 -×- VCC ICK11-2 -×- T.H. ICK11-3 -×- T.H. ICH7-1 — RB7-1 ICJ6-11 — ICH7-19 ICL8-1 — ICL8-7 ICL8-3 — ICL8-4 ICJ7-5 — ICK11-3 ICK11-6 — ICJ11-10 ICL9-14 — ICK11-2
Parts that have been added.	C194, C195, C196 C208, C209, C210 C222, C223, C270 C274, C285 ICG5, G6, G7 ICH5, H6, H7 ICJ5, J6 R12 RB7

Applied Serial No. 11001 and higher	
Jumpers that have been cut.	ICP5-1 -×- C21
Parts that have been added.	D18, D19
Parts that have been changed.	C22, R25

CN1	P-6
CN2	P-8
D1	N-5
D2	P-9
D3	P-9
D4	N-6
D5	P-6
D6	P-8
D16	N-8
D17	N-8
D21	A-10
E1	B-2
E2	B-7
E3	B-13
E4	E-1
E5	E-8
E6	F-13
E7	J-1
E8	J-9
E9	K-13
E10	L-6
E11	M-8
E12	P-8
E13	P-3
E14	P-5
E15	P-13
IC1	P-10
IC2	P-10
ICA2	A-2
ICA4	A-4
ICA5	A-5
ICA6	A-6
ICA7	A-7
ICA8	A-8
ICA9	A-9
ICA10	A-10
ICA11	A-11
ICA12	A-12
ICA13	A-13
ICA14	A-14
ICB2	B-2
ICB3	B-3
ICB4	B-4
ICB5	B-5
ICB6	B-6
ICB7	B-7
ICB8	B-8
ICB9	B-9
ICB10	B-10
ICB11	B-11
ICB12	B-12
ICB13	B-13
ICB14	B-14
ICC1	C-1
ICC2	C-2
ICC3	C-3
ICC4	C-4
ICC5	C-5
ICC6	C-6
ICC7	C-7
ICC8	C-8
ICC9	C-9
ICC10	C-10
ICC11	C-11
ICC12	C-12
ICC13	C-13
ICC14	C-14
ICD1	D-1
ICD2	D-2
ICD3	D-3
ICD4	D-4
ICD5	D-5
ICD6	D-6
ICD7	D-7
ICD8	D-8
ICD9	D-9
ICD10	D-10
ICD11	D-11
ICD12	D-12
ICD13	D-13
ICD14	D-14
ICE1	E-1
ICE2	E-2
ICE3	E-3
ICE4	E-4
ICE5	E-5
ICE6	E-6
ICE7	E-7
ICE8	E-8
ICE9	E-9
ICE10	E-10
ICE11	E-11
ICE12	E-12
ICE13	E-13
ICE14	E-14
ICF1	F-1
ICF2	F-2
ICF3	F-3
ICF4	F-4
ICF5	F-5
ICF6	F-6
ICF7	F-7
ICF8	F-8
ICF9	F-9
ICF10	F-10
ICF12	F-12
ICF13	F-13
ICF14	F-14
ICG1	G-1
ICG2	G-2
ICG3	G-3
ICG4	G-4
ICG5	G-5
ICG6	G-6
ICG7	G-7
ICG12	G-12
ICG13	G-13
ICG14	G-14
ICH1	H-1
ICH2	H-2
ICH3	H-3
ICH4	H-4
ICH5	H-5
ICH6	H-6
ICH7	H-7
ICH13	H-13
ICH14	H-14
ICJ1	J-1
ICJ2	J-2
ICJ3	J-3
ICJ4	J-4
ICJ5	J-5
ICJ6	J-6
ICJ7	J-7
ICJ8	J-8
ICJ9	J-9
ICJ10	J-10
ICJ11	J-11
ICJ12	J-12
ICJ13	J-13
ICJ14	J-14
ICK1	K-1
ICK2	K-2
ICK3	K-3
ICK4	K-4
ICK5	K-5
ICK6	K-6
ICK7	K-7
ICK8	K-8
ICK9	K-9
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ICL1	L-1
ICL2	L-2
ICL3	L-3
ICL4	L-4
ICL5	L-5
ICL6	L-6
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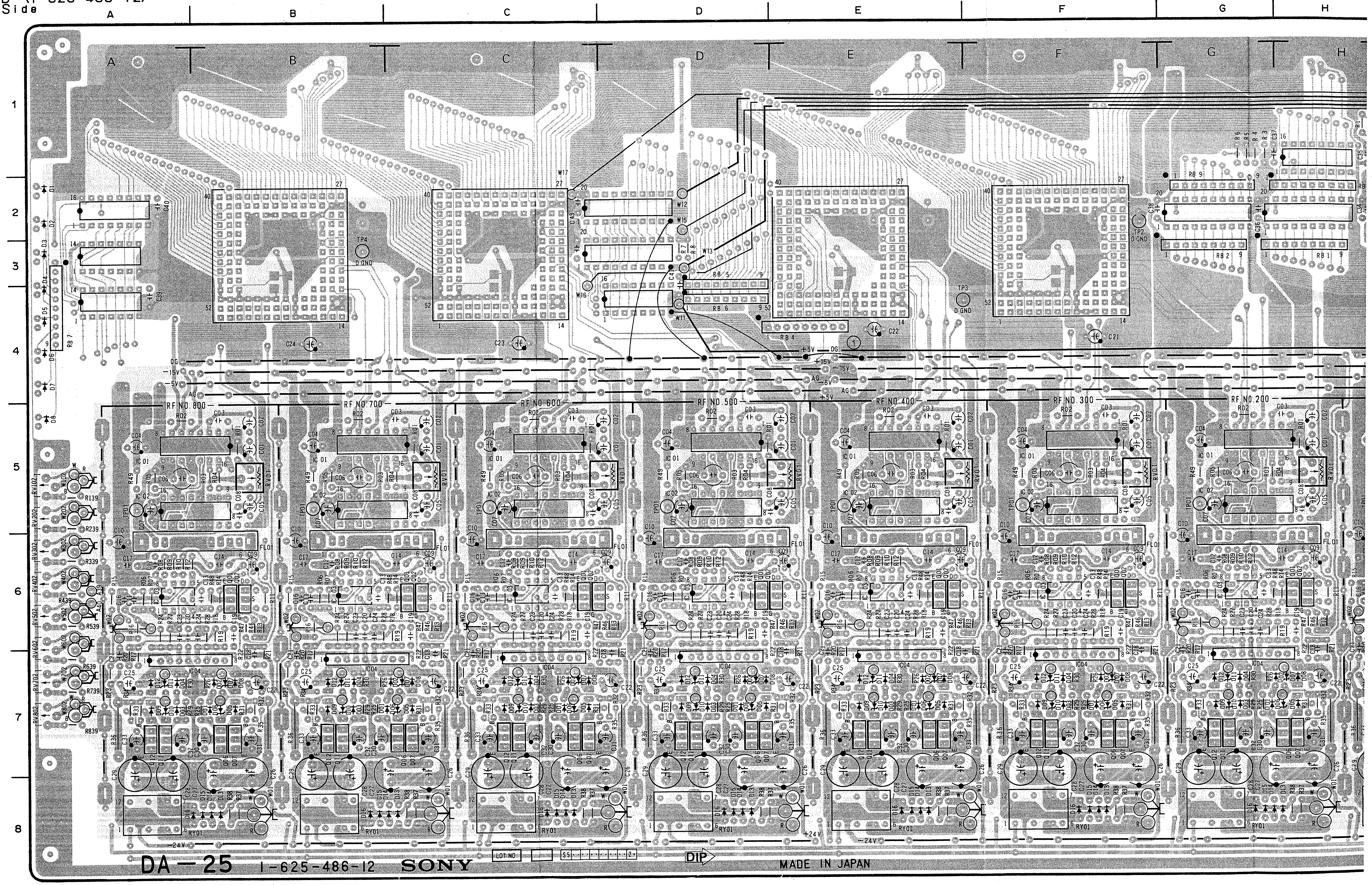
ICL9	L-9
ICL10	L-10
ICL11	L-11
ICL12	L-12
ICL13	L-13
ICL14	L-14
ICM1	M-1
ICM2	M-2
ICM3	M-3
ICM4	M-4
ICM5	M-5
ICM7	M-7
ICM9	M-9
ICM10	M-10
ICM11	M-11
ICM12	M-12
ICM13	M-13
ICM14	M-14
ICN1	N-1
ICN2	N-2
ICN3	N-3
ICN4	N-4
ICN5	N-5
ICN9	N-9
ICN10	N-10
ICN11	N-11
ICN13	N-13
ICN14	N-14
ICP1	P-1
ICP2	P-2
ICP3	P-3
ICP4	P-4
ICP5	P-5
ICP12	P-12
ICP14	P-14
Q3	P-11
Q4	P-11
Q5	P-11
Q6	P-11
RB1	N-2
RB2	N-2
RB3	P-1
RB4	P-3
RB5	P-13
RB6	G-4
TP1	N-6
TP2	N-5
TP3	L-5
TP4	K-5
TP5	K-6
TP6	M-8
TP7	M-10
TP8	J-9
TP9	E-5
TP10	E-2
TP11	G-3
TP12	J-6
TP13	N-13
TP14	N-14
TP15	M-13
TP16	K-12
TP17	G-13
VR1	N-6

CARD RACK DA-25 BOARD

DA-25 BOARD (1-625-486-12)
Component Side

S/N; 10001 TO 10400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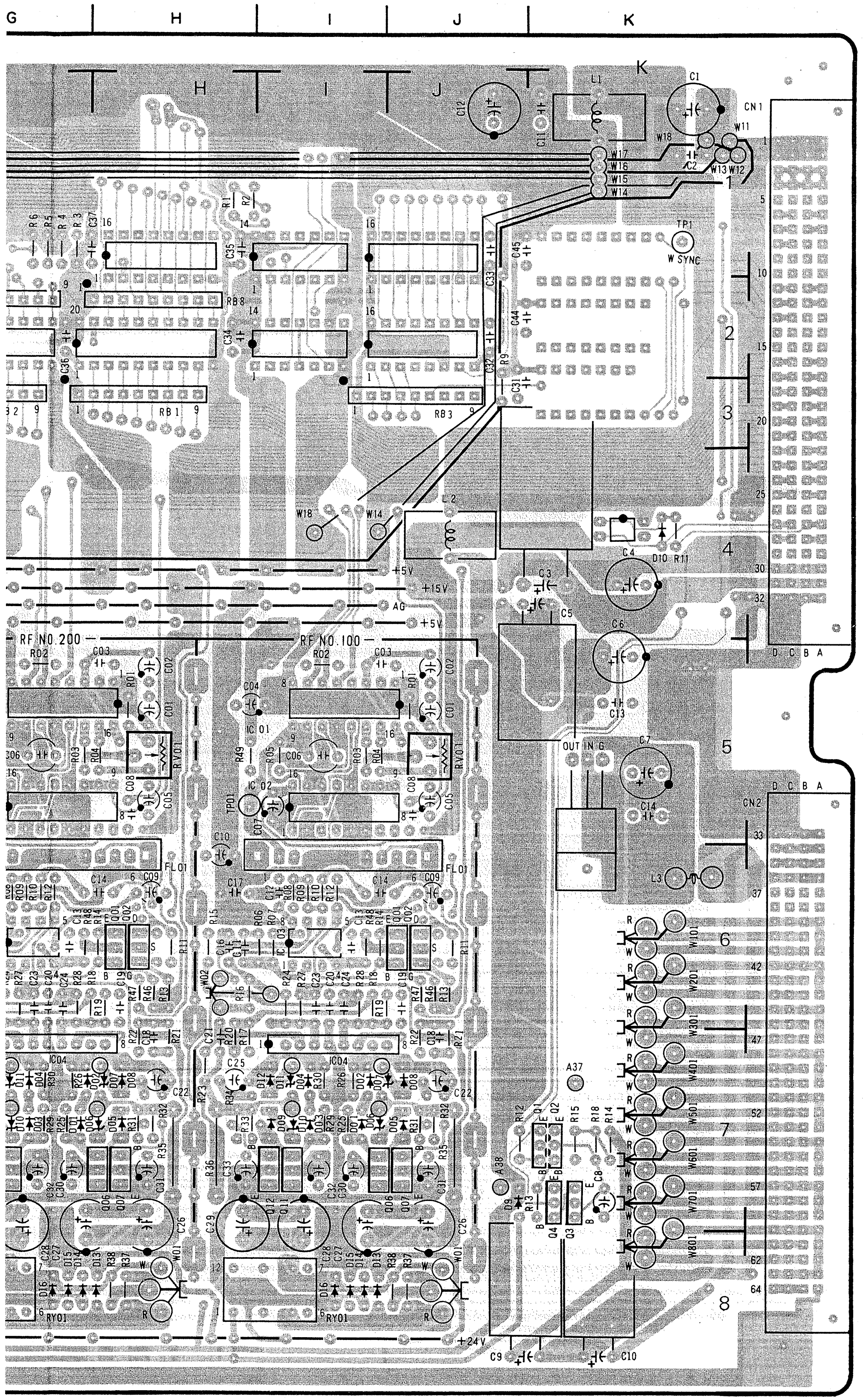
TP4
D GND
TP3
D GND
TP2
D GND
W17
W12
W15
W13
W16
W11
RF NO.800
RF NO.700
RF NO.600
RF NO.500
RF NO.400
RF NO.300
RF NO.200
DG
-15V
-5V
AG
+5V
+15V
RV102
RV202
RV302
RV402
RV502
RV602
RV702
RV802
IC 01
IC 02
IC04
FL01
RY01
-24V
+24V
DA-25
1-625-486-12
SONY
LOT NO
DIP
MADE IN JAPAN

■ SOLDER SIDE PATTERN

CARD RACK   DA-25 BOARD

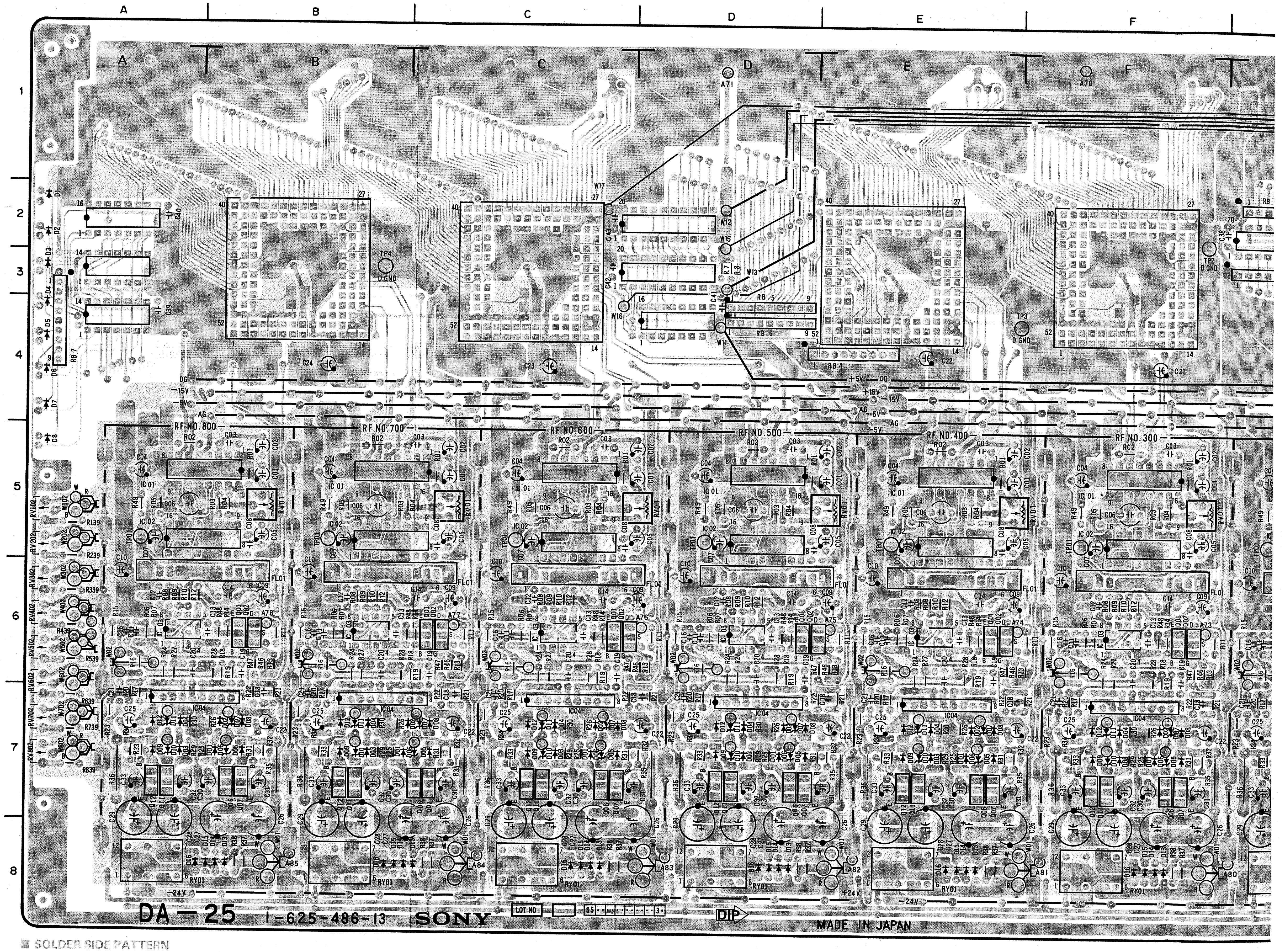


Applied Serial No. Up to 10400	
Jumpers that have been soldered.	ICD2-10 — bas bar GND ICD3-10 — bas bar GND ICD4-8 — bas bar GND +5 V — +5 V (① See the board)

CN1	K-1	D410	E-7	FL101	I-6	Q1	K-7	RV402	A-6
CN2	K-6	D411	E-7	FL201	G-6	Q2	K-7	RV501	E-5
		D412	E-7	FL301	F-6	Q3	K-7	RV502	A-6
D1	A-2	D413	E-8	FL401	E-6	Q4	K-7	RV601	D-5
D2	A-2	D414	E-8	FL501	D-6	Q101	J-6	RV602	A-6
D3	A-3	D415	E-8	FL601	C-6	Q102	J-6	RV701	C-5
D4	A-4	D416	E-8	FL701	B-6	Q106	J-7	RV702	A-7
D5	A-4	D501	D-7	FL801	B-6	Q107	J-7	RV801	B-5
D6	A-4	D502	D-7			Q111	I-7	RV802	A-7
D7	A-4	D503	D-7	IC101	I-5	Q112	I-7		
D8	A-5	D505	D-7	IC102	I-5	Q201	H-6	RY101	I-8
D9	J-7	D506	D-7	IC103	I-6	Q202	H-6	RY201	G-8
D10	K-4	D507	D-7	IC104	I-7	Q206	H-7	RY401	E-8
D101	I-7	D508	D-7	IC201	G-5	Q207	H-7	RY501	D-8
D102	I-7	D509	D-7	IC202	G-5	Q211	G-7	RY601	C-8
D103	I-7	D510	D-7	IC203	G-6	Q212	G-7	RY801	A-8
D104	I-7	D511	D-7	IC204	G-7	Q301	F-6		
D105	J-7	D512	D-7	IC301	F-5	Q302	F-6	TP1	K-1
D106	I-7	D513	D-8	IC302	F-5	Q306	F-7	TP2	F-2
D107	J-7	D514	D-8	IC303	F-6	Q307	F-7	TP3	F-4
D108	J-7	D515	D-8	IC304	F-7	Q311	F-7	TP4	B-3
D109	I-7	D516	D-8	IC401	E-5	Q312	F-7	TP101	H-5
D110	I-7	D601	C-7	IC402	E-5	Q401	E-6	TP201	G-5
D111	I-7	D602	C-7	IC403	E-6	Q402	E-6	TP301	F-5
D112	I-7	D603	C-7	IC404	E-6	Q406	E-7	TP401	E-5
D113	I-8	D604	C-7	IC501	D-5	Q407	E-7	TP501	D-5
D114	I-8	D605	C-7	IC502	D-5	Q411	E-7	TP601	C-5
D115	I-8	D606	C-7	IC503	D-6	Q412	E-7	TP701	B-5
D116	I-8	D607	C-7	IC504	D-7	Q501	D-6	TP801	A-5
D201	G-7	D608	C-7	IC601	C-5	Q502	E-6		
D202	H-7	D609	C-7	IC602	C-5	Q506	D-7		
D203	G-7	D610	C-7	IC603	C-6	Q507	D-7		
D204	G-7	D611	C-7	IC604	C-7	Q511	D-7		
D205	H-7	D612	C-7	IC701	B-5	Q512	D-7		
D206	H-7	D613	C-8	IC702	B-5	Q601	C-6		
D207	H-7	D614	C-8	IC703	B-6	Q602	C-6		
D208	H-7	D615	C-8	IC704	B-7	Q606	C-7		
D209	G-7	D616	C-8	IC801	A-5	Q607	C-7		
D210	G-7	D701	B-7	IC802	A-5	Q611	C-7		
D211	G-7	D702	C-7	IC803	A-6	Q612	C-7		
D212	G-7	D703	B-7	IC804	A-7	Q701	C-6		
D213	H-8	D704	B-7			Q702	C-6		
D214	G-8	D705	C-7	ICA2	A-2	Q706	C-7		
D215	G-8	D706	C-7	ICA3	A-3	Q707	C-7		
D216	G-8	D707	C-7	ICA4	A-4	Q711	B-7		
D301	F-7	D708	C-7			Q712	B-7		
D302	F-7	D709	B-7	ICB3	B-3	Q801	B-6		
D303	F-7	D710	B-7			Q802	B-6		
D304	F-7	D711	D-7	ICC3	C-3	Q806	B07		
D305	F-7	D712	D-7			Q807	B-7		
D306	F-7	D713	C-8	ICD2	D-2	Q811	A-7		
D307	F-7	D714	B-8	ICD3	D-3	Q812	A-7		
D308	F-7	D715	B-8	ICD4	D-4				
D309	F-7	D716	B-8			RB1	H-3		
D310	F-7	D801	B-7	ICE3	E-3	RB2	G-3		
D311	F-7	D802	B-7			RB3	J-3		
D312	F-7	D803	A-7	ICF3	F-3	RB4	E-4		
D313	F-8	D804	A-7			RB5	D-4		
D314	F-8	D805	B-7	ICG2	G-2	RB6	D-4		
D315	F-8	D806	B-7			RB7	A-4		
D316	F-8	D807	B-7	ICH1	H-1	RB8	H-2		
D401	E-7	D808	B-7	ICH2	H-2	RB9	G-2		
D402	E-7	D809	A-7						
D403	E-7	D810	A-7	ICI1	I-1	RV101	J-5		
D404	E-7	D811	A-7	ICI2	I-2	RV102	A-5		
D405	E-7	D812	A-7			RV201	H-5		
D406	E-7	D813	B-8	ICJ1	J-1	RV202	A-5		
D407	E-7	D814	B-8	ICJ2	J-2	RV301	F-5		
D408	E-7	D815	B-8			RV302	A-6		
D409	E-7	D816	A-8			RV401	E-5		

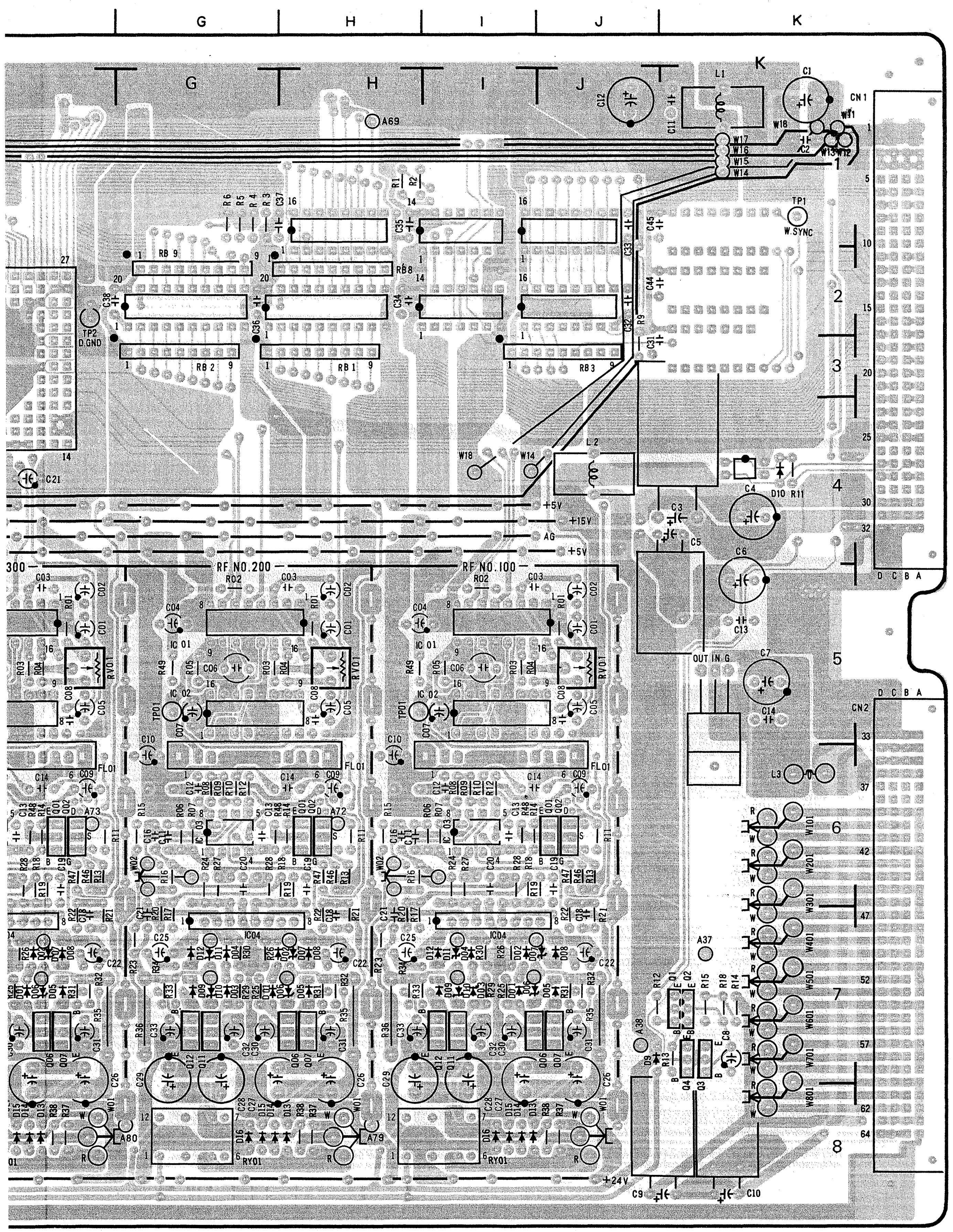
CARD RACK DA-25 BOARD

DA-25 BOARD (1-625-486-13) S/N; 10401 AND HIGHER
Component Side


A
B
C
D
E
F
1
2
3
4
5
6
7
8
TP4 D.GND
TP3 D.GND
TP2 D.GND
W17
W12
W15
W13
W16
W11
A71
A70
RB 7
RB 5
RB 6
RB 4
C24
C23
C22
C21
C39
C40
C41
C42
C43
DG
-15V
-5V
AG
+5V
+15V
RF NO.800
RF NO.700
RF NO.600
RF NO.500
RF NO.400
RF NO.300
IC 01
IC 02
IC04
FL01
RV01
RY01
A78
A77
A76
A75
A74
A73
A85
A84
A83
A82
A81
A80
RV102
RV202
RV302
RV402
RV502
RV602
RV702
RV802
R139
R239
R339
R439
R539
R639
R739
R839
-24V
+24V
DA-25
1-625-486-13
SONY
LOT NO
DIP
MADE IN JAPAN

■ SOLDER SIDE PATTERN

CARD RACK DA-25 BOARD


G
H
I
J
K
CN1
CN2
TP1
W.SYNC
TP2
D.GND
RB1
RB2
RB3
RB8
RB9
L1
L2
L3
C1
C2
C3
C4
C5
C6
C7
C8
C9
C10
C11
C12
C13
C14
D10
R11
W12
W13
W14
W15
W16
W17
W18
A69
A72
A73
A79
A80
A37
A38
+5V
+15V
AG
+24V
RF NO.100
RF NO.200
OUT IN G
W101
W201
W301
W401
W501
W601
W701
W801
RY01
FL01
IC01
IC02
IC03
IC04
TP01
RV01
1
2
3
4
5
6
7
8
D C B A

CN1	K-1
CN2	K-6
D1	A-2
D2	A-2
D3	A-3
D4	A-4
D5	A-4
D6	A-4
D7	A-4
D8	A-5
D9	J-7
D10	K-4
D101	I-7
D102	I-7
D103	I-7
D104	I-7
D105	J-7
D106	I-7
D107	J-7
D108	J-7
D109	I-7
D110	I-7
D111	I-7
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D113	I-8
D114	I-8
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D516	D-8
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D602	C-7
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D605	C-7
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D609	C-7
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D611	C-7
D612	C-7
D613	C-8
D614	C-8
D615	C-8
D616	C-8
D701	B-7
D702	C-7
D703	B-7
D704	B-7
D705	C-7
D706	C-7
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D708	C-7
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D712	B-7
D713	C-8
D714	B-8
D715	B-8
D716	B-8
D801	B-7
D802	B-7
D803	A-7
D804	A-7
D805	B-7
D806	B-7
D807	B-7
D808	B-7
D809	A-7
D810	A-7
D811	A-7
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D813	B-8
D814	B-8
D815	B-8
D816	A-8
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FL201	G-6
FL301	F-6
FL401	E-6
FL501	D-6
FL601	C-6
FL701	B-6
FL801	B-6
IC101	I-5
IC102	I-5
IC103	I-6
IC104	I-7
IC201	G-5
IC202	G-5
IC203	G-6
IC204	G-7
IC301	F-5
IC302	F-5
IC303	F-6
IC304	F-7
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IC402	E-5
IC403	E-6
IC404	E-7
IC501	D-5
IC502	D-5
IC503	D-6
IC504	D-7
IC601	C-5
IC602	C-5
IC603	C-6
IC604	C-7
IC701	B-5
IC702	B-5
IC703	B-6
IC704	B-7
IC801	A-5
IC802	A-5
IC803	A-6
IC804	A-7
ICA2	A-2
ICA3	A-3
ICA4	A-4
ICB3	B-3
ICC3	C-3
ICD2	D-2
ICD3	D-3
ICD4	D-4
ICE3	E-3
ICF3	F-3
ICG2	G-2
ICH1	H-1
ICH2	H-2
ICI1	I-1
ICI2	I-2
ICJ1	J-1
ICJ2	J-2
Q1	K-7
Q2	K-7
Q3	K-7
Q4	K-7
Q101	J-6
Q102	J-6
Q106	J-7
Q107	J-7
Q111	I-7
Q112	I-7
Q201	H-6
Q202	H-6
Q206	H-7
Q207	H-7
Q211	G-7
Q212	G-7
Q301	F-6
Q302	F-6
Q306	F-7
Q307	F-7
Q311	F-7
Q312	F-7
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Q406	E-7
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Q801	B-6
Q802	B-6
Q806	B07
Q807	B-7
Q811	A-7
Q812	A-7
RB1	H-3
RB2	G-3
RB3	J-3
RB4	E-4
RB5	D-4
RB6	D-4
RB7	A-4
RB8	H-2
RB9	G-2
RV101	J-5
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RV201	H-5
RV202	A-5
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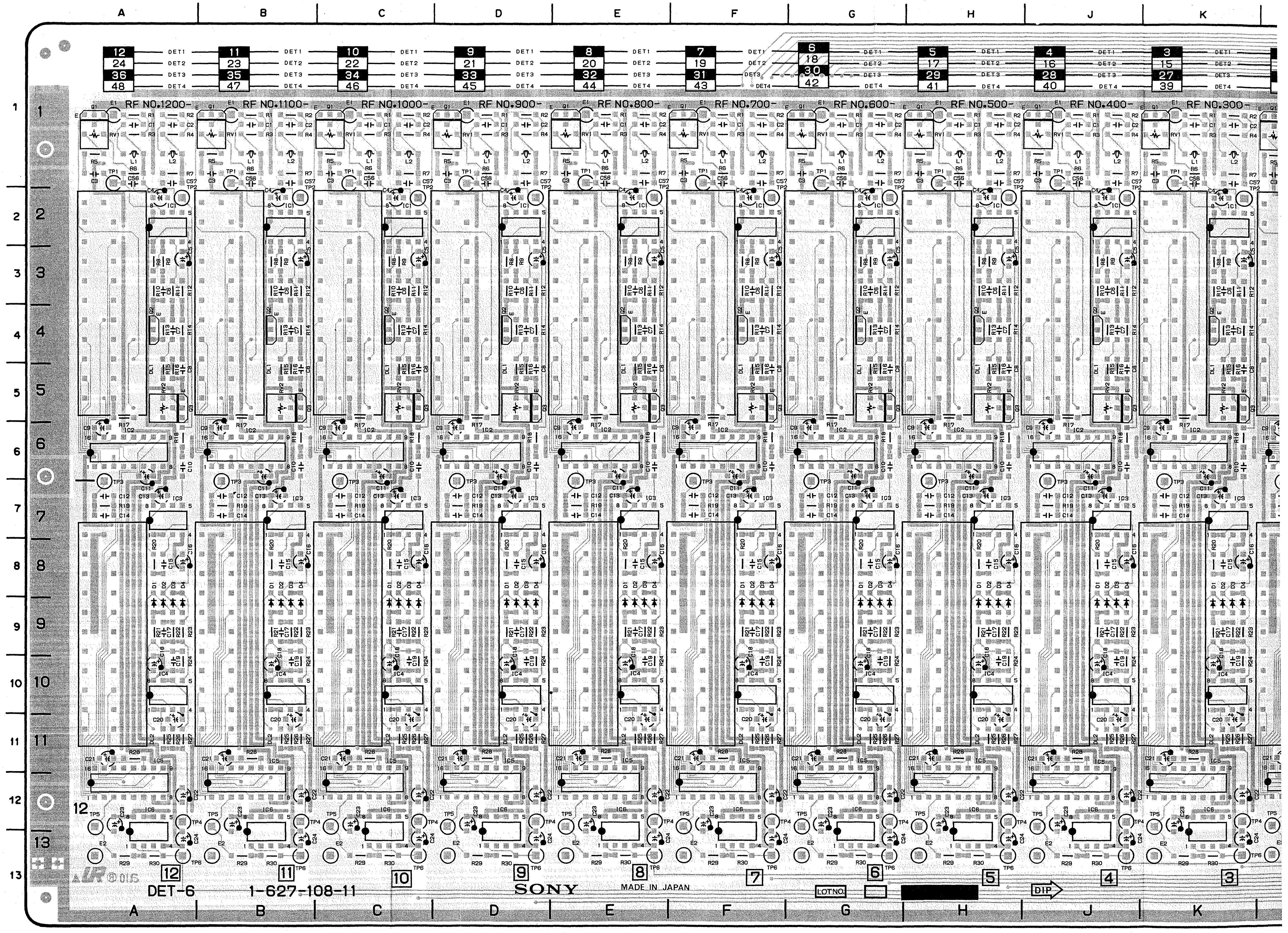
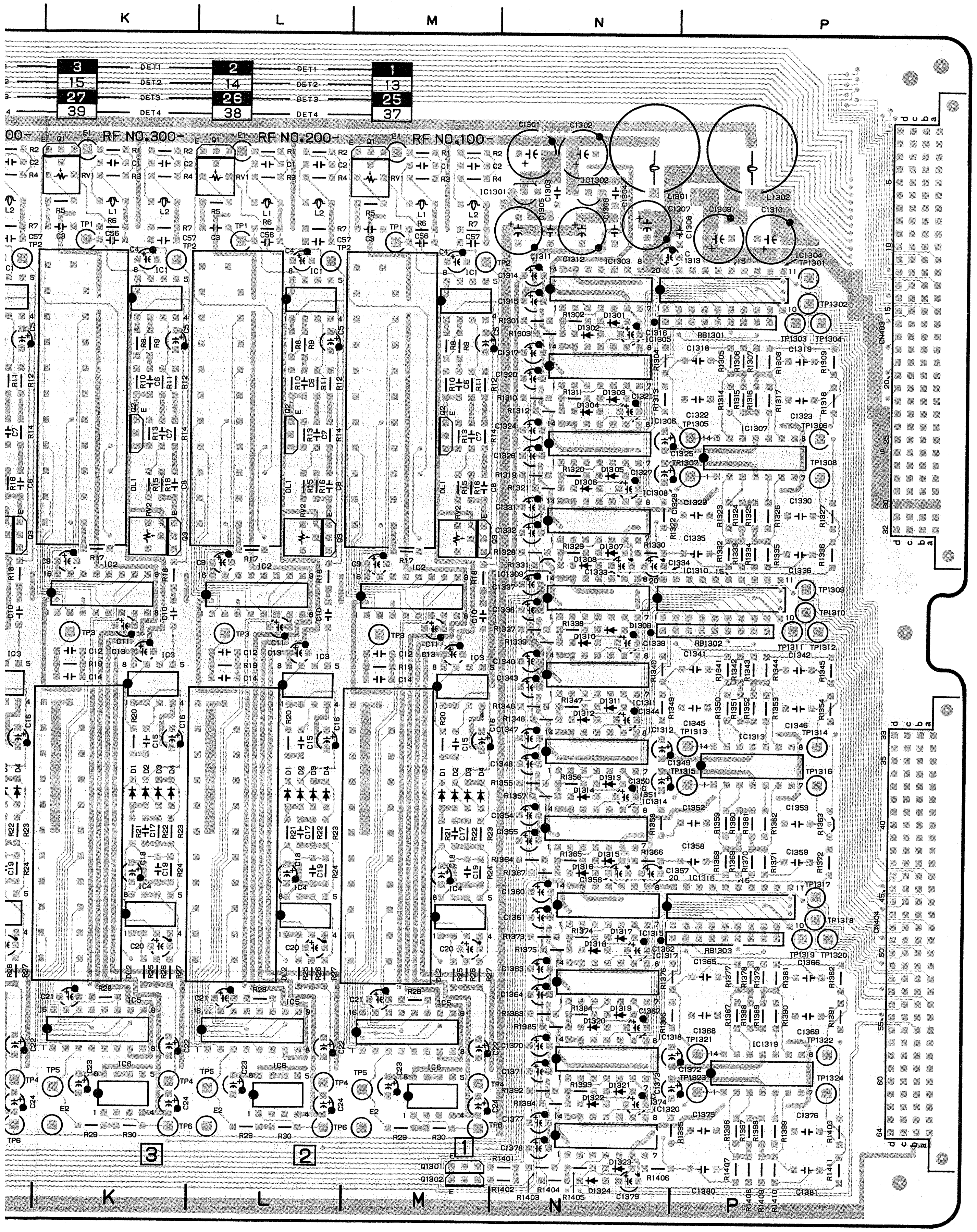
RV402	A-6
RV501	E-5
RV502	A-6
RV601	D-5
RV602	A-6
RV701	C-5
RV702	A-7
RV801	B-5
RV802	A-7
RY101	I-8
RY201	G-8
RY301	F-8
RY401	E-8
RY501	D-8
RY601	C-8
RY701	B-8
RY801	A-8
TP1	K-1
TP2	F-2
TP3	F-4
TP4	B-3
TP101	H-5
TP201	G-5
TP301	F-5
TP401	E-5
TP501	D-5
TP601	C-5
TP701	B-5
TP801	A-5

DET-6 BOARD (1-627-108-11)
Component Side


A
B
C
D
E
F
G
H
J
K
1
2
3
4
5
6
7
8
9
10
11
12
13
RF NO.1200-
RF NO.1100-
RF NO.1000-
RF NO.900-
RF NO.800-
RF NO.700-
RF NO.600-
RF NO.500-
RF NO.400-
RF NO.300-
DET1
DET2
DET3
DET4
DET-6
1-627-108-11
SONY
MADE IN JAPAN
LOTNO
DIP

■ SOLDER SIDE PATTERN

CARD RACK DET-6 BOARD



CN403	P-2
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D101	M-9
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D103	M-9
D104	M-9
D201	L-9
D202	L-9
D203	L-9
D204	L-9
D301	K-9
D302	K-9
D303	K-9
D304	K-9
D401	J-9
D402	J-9
D403	J-9
D404	J-9
D501	H-9
D502	H-9
D503	H-9
D504	H-9
D601	G-9
D602	G-9
D603	G-9
D604	G-9
D701	F-9
D702	F-9
D703	F-9
D704	F-9
D801	E-9
D802	E-9
D803	E-9
D804	E-9
D901	D-9
D902	D-9
D903	D-9
D904	D-9
D1001	C-9
D1002	C-9
D1003	C-9
D1004	C-9
D1101	B-9
D1102	B-9
D1103	B-9
D1104	B-9
D1201	A-9
D1202	A-9
D1203	A-9
D1204	A-9
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D1302	N-3
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D1304	N-4
D1305	N-4
D1306	N-5
D1307	N-5
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D1309	N-6
D1310	N-7
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D1324	N-13
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DL202	L-11
DL301	K-5
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DL402	J-11
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DL502	H-11
DL601	G-5
DL602	G-11
DL701	F-5
DL702	F-11
DL801	D-5
DL802	E-11
DL901	C-5
DL902	D-11
DL1001	B-5
DL1002	C-11
DL1101	A-5
DL1102	B-11
DL1202	A-11
E101	M-1
E102	M-13
E201	L-1
E202	L-13
E301	K-1
E302	K-13
E401	J-1
E402	J-13
E501	H-1
E502	H-13
E601	G-1
E602	G-13
E701	F-1
E702	F-13
E801	E-1
E802	E-13
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E1202	B-13
IC101	M-2
IC102	M-6
IC103	M-7
IC104	M-10
IC105	M-12
IC106	M-12
IC201	L-2
IC202	L-6
IC203	L-7
IC204	L-10
IC205	L-12
IC206	L-12
IC301	K-2
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IC303	K-7
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IC403	J-7
IC404	J-10
IC405	J-12
IC406	J-12
IC501	H-2
IC502	H-6
IC503	H-7
IC504	H-10
IC505	H-12
IC506	H-12
IC601	G-2
IC602	G-6
IC603	G-7
IC604	G-10
IC605	G-12
IC606	G-12
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IC803	E-7
IC804	E-10
IC805	E-12
IC806	E-12
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IC902	D-6
IC903	D-7
IC904	D-10
IC905	D-12
IC906	D-12
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IC1302	N-1
IC1303	N-2
IC1304	P-2
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IC1307	P-4
IC1308	N-5
IC1309	N-6
IC1310	P-6
IC1311	N-7
IC1312	N-8
IC1313	P-8
IC1314	N-9
IC1315	N-10
IC1316	P-10
IC1317	N-11
IC1318	N-12
IC1319	P-12
IC1320	N-13
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Q102	M-4
Q103	M-5
Q201	K-1
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Q302	K-4
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Q401	H-1
Q402	J-4
Q403	J-5
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Q503	H-5
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Q602	G-4
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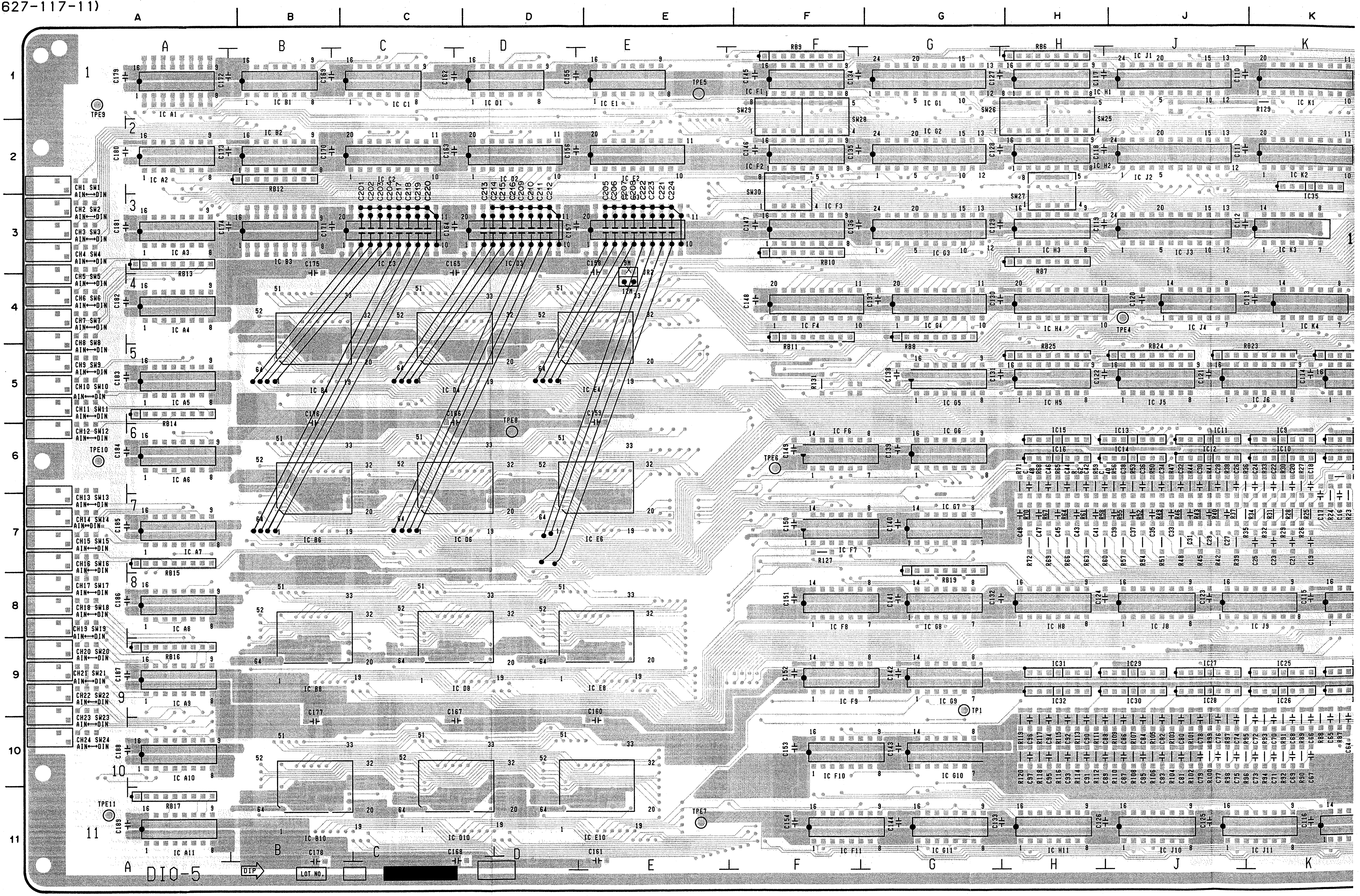
Q701	E-1
Q702	F-4
Q703	F-5
Q801	D-1
Q802	E-4
Q803	E-5
Q901	C-1
Q902	D-4
Q903	D-5
Q1001	B-1
Q1002	C-4
Q1003	C-5
Q1101	A-1
Q1102	B-4
Q1103	B-5
Q1202	A-4
Q1203	A-5
Q1301	M-13
Q1302	M-13
RB1301	P-2
RB1302	P-6
RB1303	P10
RV101	M-1
RV102	M-5
RV201	L-1
RV202	L-5
RV301	K-1
RV302	K-5
RV401	J-1
RV402	J-5
RV501	H-1
RV502	H-5
RV601	G-1
RV602	G-5
RV701	F-1
RV702	F-5
RV801	E-1
RV802	E-5
RV901	D-1
RV902	D-5
RV1001	C-1
RV1002	C-5
RV1101	B-1
RV1102	B-5
RV1201	A-1
RV1202	A-5
TP101	M-1
TP102	M-2
TP103	M-7
TP104	M-12
TP105	M-12
TP106	M-13
TP201	L-2
TP202	K-2
TP203	K-7
TP204	L-12
TP205	L-12
TP206	L-13
TP301	L-1
TP302	J-2
TP303	J-7
TP304	K-12
TP305	J-12
TP306	K-13
TP401	K-1
TP402	H-2
TP403	G-7
TP404	J-12
TP405	H-12
TP406	J-13
TP501	J-1
TP502	G-2
TP503	F-7
TP504	H-12
TP505	G-12
TP506	H-13
TP601	H-1
TP602	F-2
TP603	E-7
TP604	G-12
TP605	F-12
TP606	G-13
TP701	G-1
TP702	E-2
TP703	D-7
TP704	F-12
TP705	E-12
TP706	F-13
TP801	F-1
TP802	D-2
TP803	C-7
TP804	E-12
TP805	D-12
TP806	E-13
TP901	E-1
TP902	C-2
TP903	B-7
TP904	D-12
TP905	C-12
TP906	D-13
TP1001	D-1
TP1002	B-2
TP1003	A-7
TP1004	C-12
TP1005	B-12
TP1006	B-13
TP1101	C-1
TP1102	A-2
TP1104	B-12
TP1105	A-12
TP1106	A-13
TP1201	B-1
TP1204	A-12
TP1301	A-1
TP1301	P-2
TP1302	P-2
TP1303	P-2
TP1304	P-2
TP1305	P-4
TP1306	P-4
TP1307	P-4
TP1308	P-4
TP1309	P-6
TP1310	P-6
TP1311	P-6
TP1312	P-6
TP1313	P-8
TP1314	P-8
TP1315	P-8
TP1316	P-8
TP1317	P-10
TP1318	P-10
TP1319	P-10
TP1320	P-10
TP1321	P-12
TP1322	P-12
TP1323	P-12
TP1324	P-12

CARD RACK DIO-5 BOARD

S/N; 10001 TO 10500

DIO-5 BOARD (1-627-117-11)
Component Side


A
B
C
D
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G
H
J
K
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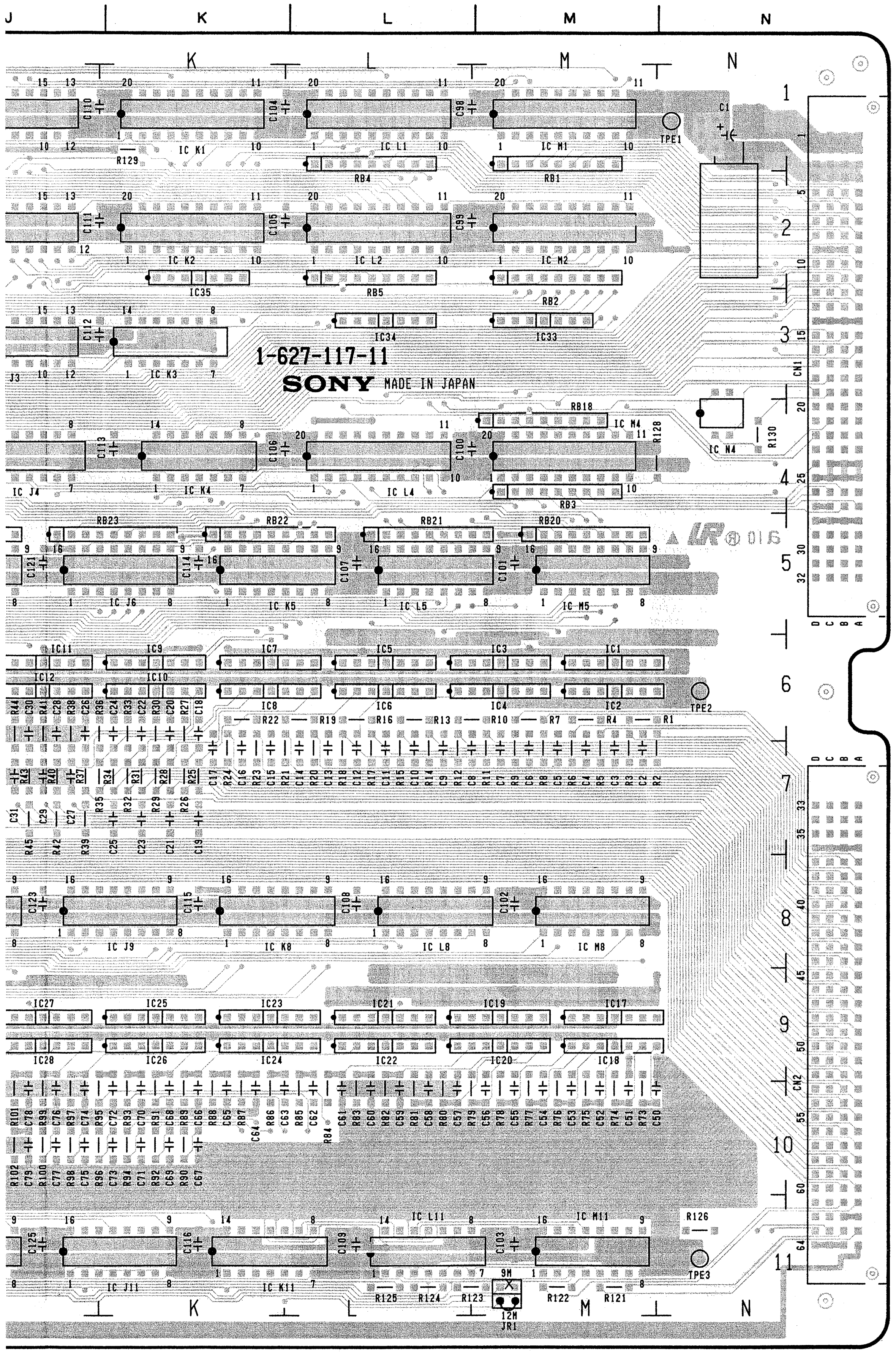
11
CH1 SW1 AIN↔DIN
CH2 SW2 AIN↔DIN
CH3 SW3 AIN↔DIN
CH4 SW4 AIN↔DIN
CH5 SW5 AIN↔DIN
CH6 SW6 AIN↔DIN
CH7 SW7 AIN↔DIN
CH8 SW8 AIN↔DIN
CH9 SW9 AIN↔DIN
CH10 SW10 AIN↔DIN
CH11 SW11 AIN↔DIN
CH12 SW12 AIN↔DIN
CH13 SW13 AIN↔DIN
CH14 SW14 AIN↔DIN
CH15 SW15 AIN↔DIN
CH16 SW16 AIN↔DIN
CH17 SW17 AIN↔DIN
CH18 SW18 AIN↔DIN
CH19 SW19 AIN↔DIN
CH20 SW20 AIN↔DIN
CH21 SW21 AIN↔DIN
CH22 SW22 AIN↔DIN
CH23 SW23 AIN↔DIN
CH24 SW24 AIN↔DIN
TPE9
TPE10
TPE11
TPE5
TPE8
TPE6
TPE4
TPE7
TP1
DIO-5
DIP
LOT NO.

■ SOLDER SIDE PATTERN

CARD RACK DIO-5 BOARD


J
K
L
M
N
1
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4
5
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7
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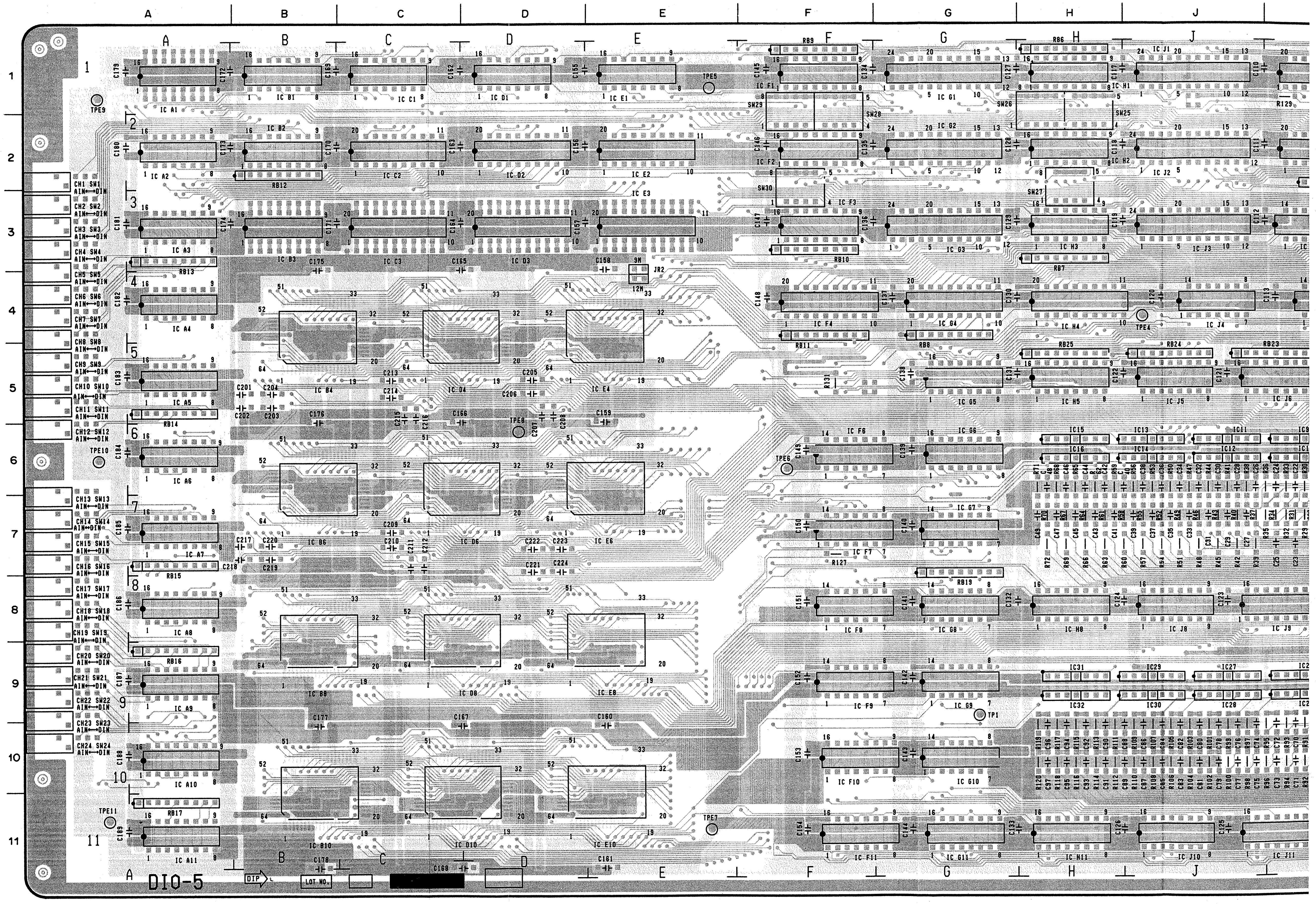
9
10
11
1-627-117-11
SONY MADE IN JAPAN
CN1
CN2
TPE1
TPE2
TPE3
JR1
IC K1
IC L1
IC M1
IC K2
IC L2
IC M2
IC K3
IC J4
IC K4
IC L4
IC M4
IC N4
IC J6
IC K5
IC L5
IC M5
IC J9
IC K8
IC L8
IC M8
IC J11
IC K11
IC L11
IC M11
RB1
RB2
RB3
RB4
RB5
RB18
RB20
RB21
RB22
RB23
IC33
IC34
IC35

Applied Serial No. Up to 10500	
Jumpers that have been soldered or cut.	Jamper's .... 29 (See the board) Cut (JR-1 & JR-2) (See the board)
Parts that have been added.	C201 to C224

CN1	N-3
CN2	N-9
IC1	M-6
IC2	M-6
IC3	M-6
IC4	M-6
IC5	L-6
IC6	L-6
IC7	K-6
IC8	K-6
IC9	K-6
IC10	K-6
IC11	J-6
IC12	J-6
IC13	J-6
IC14	J-6
IC15	H-6
IC16	H-6
IC17	M-9
IC18	M-9
IC19	M-9
IC20	M-9
IC21	L-9
IC22	L-9
IC23	K-9
IC24	K-9
IC25	K-9
IC26	K-9
IC27	J-9
IC28	J-9
IC29	J-9
IC30	J-9
IC31	H-9
IC32	H-9
IC33	M-3
IC34	L-3
IC35	K-2
ICA1	A-1
ICA2	A-2
ICA3	A-3
ICA4	A-4
ICA5	A-5
ICA6	A-6
ICA7	A-7
ICA8	A-8
ICA9	A-9
ICA10	A-10
ICA11	A-11
ICB1	B-1
ICB2	B-2
ICB3	B-3
ICB4	B-4
ICB6	B-6
ICB8	B-8
ICB10	B-10
ICC1	C-1
ICC2	C-2
ICC3	C-3
ICD1	D-1
ICD2	D-2
ICD3	D-3
ICD4	D-4
ICD6	D-6
ICD8	D-8
ICD10	D-10
ICE1	E-1
ICE2	E-2
ICE3	E-3
ICE4	E-4
ICE6	E-6
ICE8	E-8
ICE10	E-10
ICF1	F-1
ICF2	F-2
ICF3	F-3
ICF4	F-4
ICF6	F-6
ICF7	F-7
ICF8	F-8
ICF9	F-9
ICF10	F-10
ICF11	F-11
ICG1	G-1
ICG2	G-2
ICG3	G-3
ICG4	G-4
ICG5	G-5
ICG6	G-6
ICG7	G-7
ICG8	G-8
ICG9	G-9
ICG10	G-10
ICG11	G-11
ICH1	G-11
ICH2	H-2
ICH3	H-3
ICH4	H-4
ICH5	H-5
ICH8	H-8
ICH11	H-11
ICJ1	J-1
ICJ2	J-2
ICJ3	J-3
ICJ4	J-4
ICJ5	J-5
ICJ6	K-5
ICJ8	J-8
ICJ9	K-8
ICJ10	J-11
ICJ11	K-11
ICK1	K-1
ICK2	K-2
ICK3	K-3
ICK4	K-4
ICK5	K-5
ICK8	K-8
ICK11	K-11
ICL1	L-1
ICL2	L-2
ICL4	L-4
ICL5	L-5
ICL8	L-8
ICL11	L-11
ICM1	M-1
ICM2	M-2
ICM4	M-4
ICM5	M-5
ICM8	M-8
ICM11	M-11
ICN4	N-4
RB1	M-1
RB2	M-2
RB3	M-4
RB4	L-1
RB5	L-2
RB6	G-11
RB7	H-3
RB8	G-4
RB9	F-1
RB10	F-3
RB11	F-4
RB12	B-2
RB13	A-3
RB14	A-5
RB15	A-7
RB16	A-9
RB17	A-11
RB18	M-4
RB19	G-7
RB20	M-5
RB21	L-5
RB22	K-5
RB23	K-5
RB24	J-5
RB25	H-5
SW1	A-2
SW2	A-3
SW3	A-3
SW4	A-3
SW5	A-4
SW6	A-4
SW7	A-4
SW8	A-4
SW9	A-5
SW10	A-5
SW11	A-5
SW12	A-6
SW13	A-7
SW14	A-7
SW15	A-7
SW16	A-7
SW17	A-8
SW18	A-8
SW19	A-8
SW20	A-9
SW21	A-9
SW22	A-9
SW23	A-9
SW24	A-10
SW25	G-11
SW26	G-11
SW27	H-2
SW28	F-1
SW29	F-1
TP1	G-9
TPE1	N-1
TPE2	N-6
TPE3	N-11
TPE4	J-4
TPE5	E-1
TPE6	F-6
TPE7	E-11
TPE8	D-6
TPE9	A-1
TPE10	A-6
TPE11	A-11

CARD RACK DIO-5 BOARD

DIO-5 BOARD (1-627-117-12) S/N; 10501 AND HIGHER
Component Side



A
B
C
D
E
F
G
H
J
1
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6
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8
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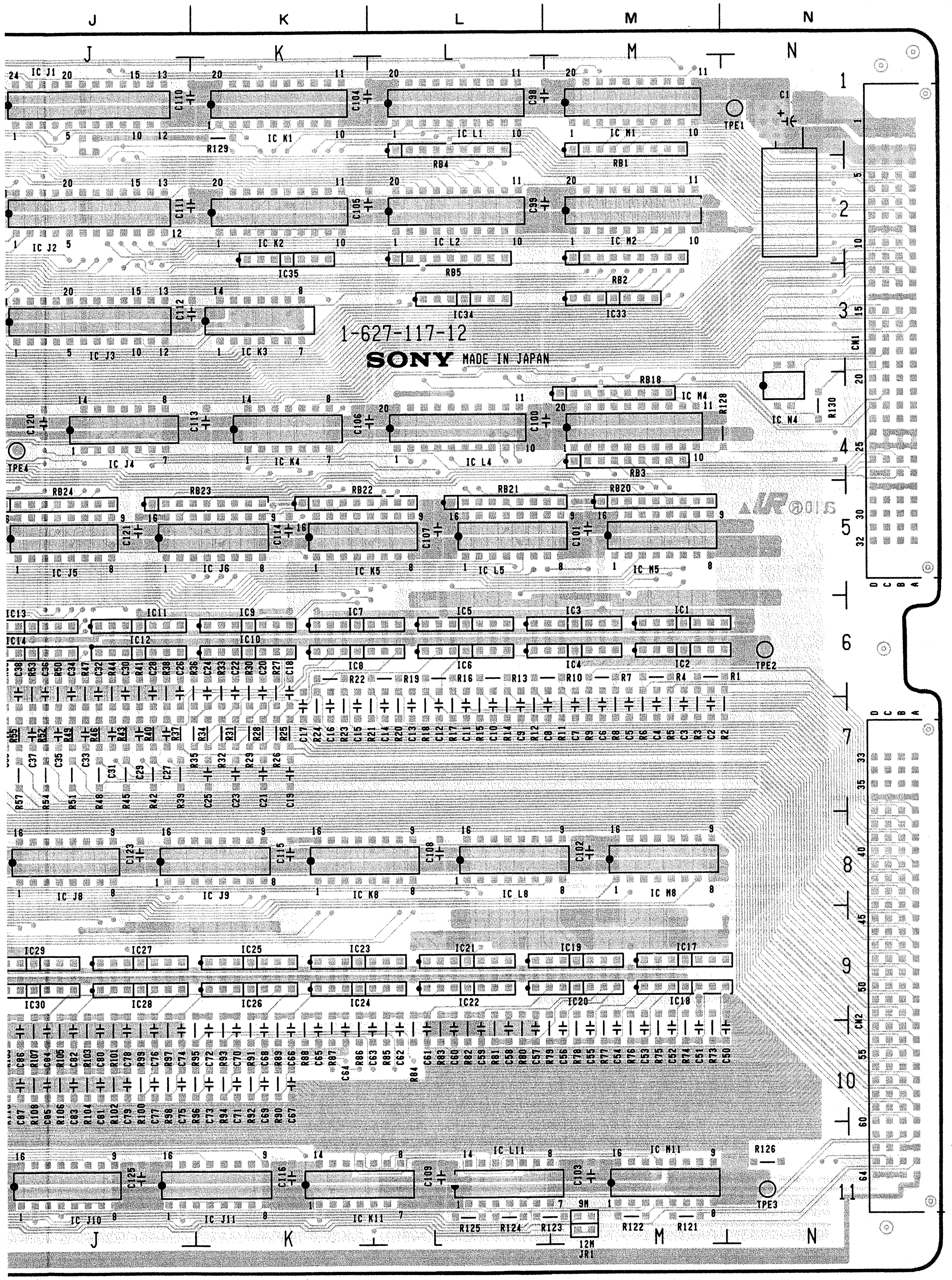
10
11
CH1 SW1 AIN↔DIN
CH2 SW2 AIN↔DIN
CH3 SW3 AIN↔DIN
CH4 SW4 AIN↔DIN
CH5 SW5 AIN↔DIN
CH6 SW6 AIN↔DIN
CH7 SW7 AIN↔DIN
CH8 SW8 AIN↔DIN
CH9 SW9 AIN↔DIN
CH10 SW10 AIN↔DIN
CH11 SW11 AIN↔DIN
CH12 SW12 AIN↔DIN
CH13 SW13 AIN↔DIN
CH14 SW14 AIN↔DIN
CH15 SW15 AIN↔DIN
CH16 SW16 AIN↔DIN
CH17 SW17 AIN↔DIN
CH18 SW18 AIN↔DIN
CH19 SW19 AIN↔DIN
CH20 SW20 AIN↔DIN
CH21 SW21 AIN↔DIN
CH22 SW22 AIN↔DIN
CH23 SW23 AIN↔DIN
CH24 SW24 AIN↔DIN
IC A1
IC B1
IC C1
IC D1
IC E1
IC F1
IC G1
IC H1
IC J1
TPE9
TPE5
TPE4
TPE6
TPE8
TPE10
TPE11
TPE7
TP1
DIO-5
DTP
LOT NO.

■ SOLDER SIDE PATTERN

CARD RACK   DIO-5 BOARD


J
K
L
M
N
1
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7
8
9
10
11
1-627-117-12
SONY
MADE IN JAPAN
CN1
CN2
TPE1
TPE2
TPE3
TPE4
IC J1
IC K1
IC L1
IC M1
IC J2
IC K2
IC L2
IC M2
IC J3
IC K3
IC N4
IC J4
IC K4
IC L4
IC J5
IC J6
IC K5
IC L5
IC M5
IC J8
IC J9
IC K8
IC L8
IC M8
IC J10
IC J11
IC K11
IC L11
IC M11
RB1
RB2
RB3
RB4
RB5
RB18
RB20
RB21
RB22
RB23
RB24
IC33
IC34
IC35
R126
R128
R129
R130
JR1

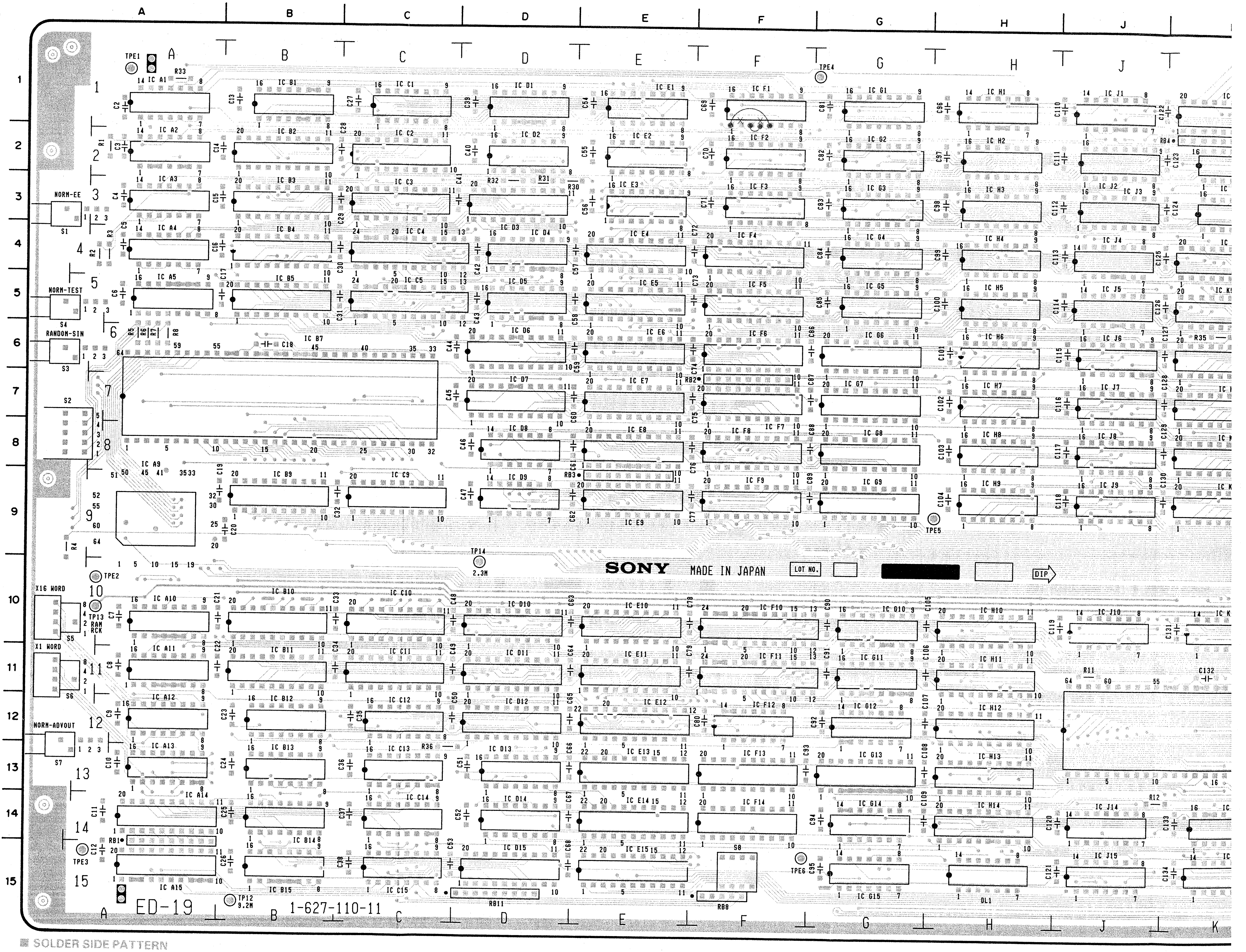
CN1	N-3
CN2	N-9
IC1	M-6
IC2	M-6
IC3	M-6
IC4	M-6
IC5	L-6
IC6	L-6
IC7	K-6
IC8	K-6
IC9	K-6
IC10	K-6
IC11	J-6
IC12	J-6
IC13	J-6
IC14	J-6
IC15	H-6
IC16	H-6
IC17	M-9
IC18	M-9
IC19	M-9
IC20	M-9
IC21	L-9
IC22	L-9
IC23	K-9
IC24	K-9
IC25	K-9
IC26	K-9
IC27	J-9
IC28	J-9
IC29	J-9
IC30	J-9
IC31	H-9
IC32	H-9
IC33	M-3
IC34	L-3
IC35	K-2
ICA1	A-1
ICA2	A-2
ICA3	A-3
ICA4	A-4
ICA5	A-5
ICA6	A-6
ICA7	A-7
ICA8	A-8
ICA9	A-9
ICA10	A-10
ICA11	A-11
ICB1	B-1
ICB2	B-2
ICB3	B-3
ICB4	B-4
ICB6	B-6
ICB8	B-8
ICB10	B-10
ICC1	C-1
ICC2	C-2
ICC3	C-3
ICD1	D-1
ICD2	D-2
ICD3	D-3
ICD4	D-4
ICD6	D-6
ICD8	D-8
ICD10	D-10
ICE1	E-1
ICE2	E-2
ICE3	E-3
ICE4	E-4
ICE6	E-6
ICE8	E-8
ICE10	E-10
ICF1	F-1
ICF2	F-2
ICF3	F-3
ICF4	F-4
ICF6	F-6
ICF7	F-7
ICF8	F-8
ICF9	F-9
ICF10	F-10
ICF11	F-11
ICG1	G-1
ICG2	G-2
ICG3	G-3
ICG4	G-4
ICG5	G-5
ICG6	G-6
ICG7	G-7
ICG8	G-8
ICG9	G-9
ICG10	G-10
ICG11	G-11
ICH1	H-1
ICH2	H-2
ICH3	H-3
ICH4	H-4
ICH5	H-5
ICH8	H-8
ICH11	H-11
ICJ1	J-1
ICJ2	J-2
ICJ3	J-3
ICJ4	J-4
ICJ5	J-5
ICJ6	K-5
ICJ8	J-8
ICJ9	K-8
ICJ10	J-11
ICJ11	K-11
ICK1	K-1
ICK2	K-2
ICK3	K-3
ICK4	K-4
ICK5	K-5
ICK8	K-8
ICK11	K-11
ICL1	L-1
ICL2	L-2
ICL4	L-4
ICL5	L-5
ICL8	L-8
ICL11	L-11
ICM1	M-1
ICM2	M-2
ICM4	M-4
ICM5	M-5
ICM8	M-8
ICM11	M-11
ICN4	N-4
RB1	M-1
RB2	M-2
RB3	M-4
RB4	L-1
RB5	L-2
RB6	H-1
RB7	H-3
RB8	G-4
RB9	F-1
RB10	F-3
RB11	F-4
RB12	B-2
RB13	A-3
RB14	A-5
RB15	A-7
RB16	A-9
RB17	A-11
RB18	M-4
RB19	G-8
RB20	M-5
RB21	L-5
RB22	K-5
RB23	K-5
RB24	J-5
RB25	H-5
SW1	A-2
SW2	A-3
SW3	A-3
SW4	A-3
SW5	A-4
SW6	A-4
SW7	A-4
SW8	A-4
SW9	A-5
SW10	A-5
SW11	A-5
SW12	A-6
SW13	A-7
SW14	A-7
SW15	A-7
SW16	A-7
SW17	A-8
SW18	A-8
SW19	A-8
SW20	A-9
SW21	A-9
SW22	A-9
SW23	A-9
SW24	A-10
SW25	H-1
SW26	H-1
SW27	H-2
SW28	F-1
SW29	F-1
SW-30	F-2
TP1	G-9
TPE1	N-1
TPE2	N-6
TPE3	N-11
TPE4	J-4
TPE5	E-1
TPE6	F-6
TPE7	E-11
TPE8	D-6
TPE9	A-1
TPE10	A-6
TPE11	A-11

S/N; 10001 AND HIGHER

CARD RACK ED-19 BOARD

ED-19 BOARD (1-627-110-11)

Component Side


A
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G
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J
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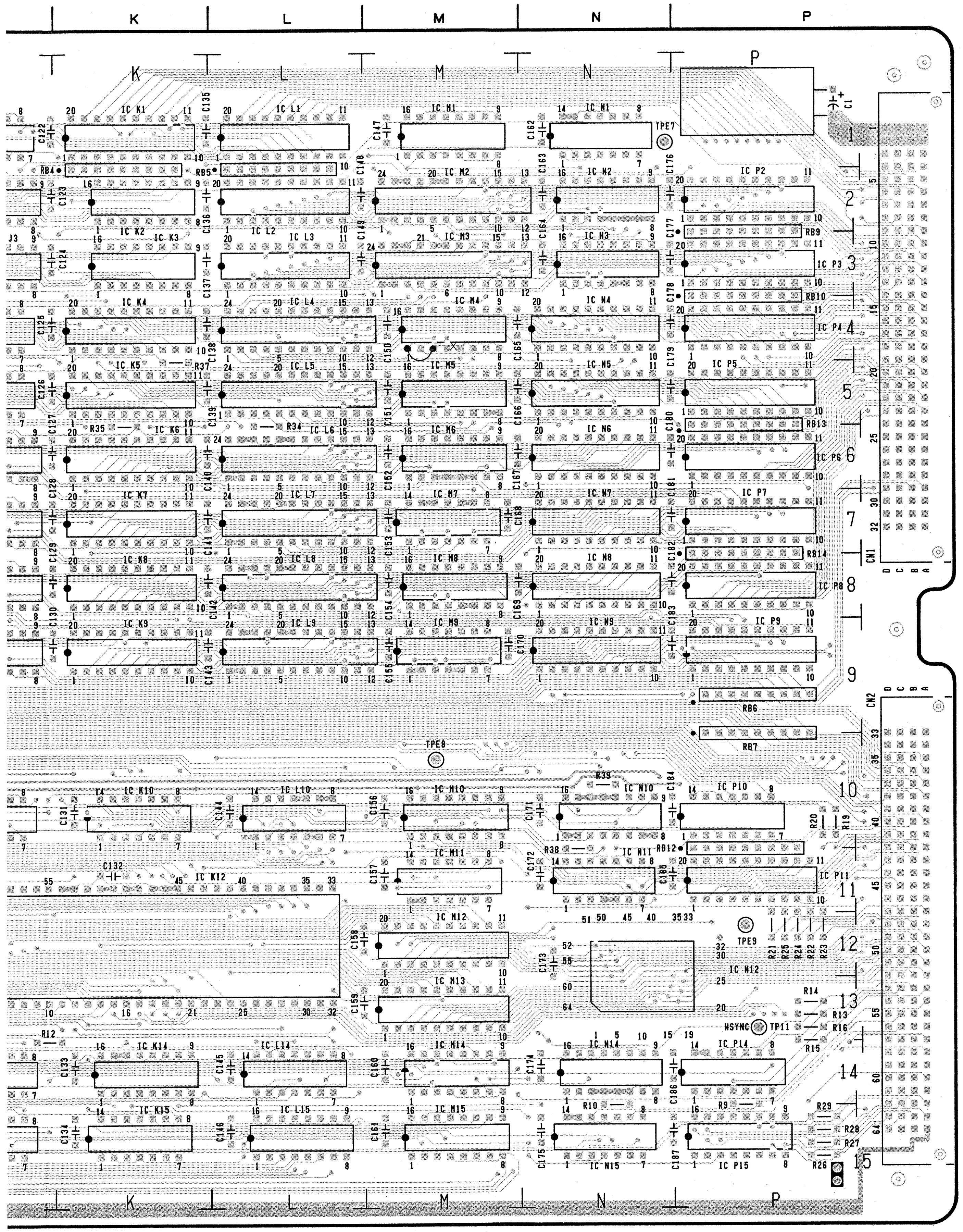
11
12
13
14
15
NORM-EE
S1
NORM-TEST
S4
RANDON-SIN
S3
S2
X16 WORD
S5
X1 WORD
S6
NORM-ADVOUT
S7
TPE1
TPE2
TPE3
TPE4
TPE5
TPE6
TP12
9.2M
TP13
RAM
RCK
TP14
2.3M
IC B7
IC A9
SONY
MADE IN JAPAN
LOT NO.
DIP
ED-19
1-627-110-11
RB11
RB8
S8
DL1

▩ SOLDER SIDE PATTERN

CARD RACK ED-19 BOARD


K
L
M
N
P
IC K1
IC L1
IC M1
IC N1
TPE7
C1
IC M2
IC N2
IC P2
IC K2
IC K3
IC L2
IC L3
IC M3
IC N3
RB9
IC P3
IC K4
IC L4
IC M4
IC N4
RB10
IC P4
IC K5
IC L5
IC N5
IC P5
IC K6
IC L6
IC M6
IC N6
RB13
IC P6
IC K7
IC L7
IC M7
IC N7
IC P7
IC K8
IC L8
IC M8
IC N8
RB14
IC P8
IC K9
IC L9
IC M9
IC N9
IC P9
RB6
RB7
TPE8
IC K10
IC L10
IC M10
IC N10
IC P10
IC K12
IC M11
IC N11
RB12
IC P11
IC M12
TPE9
IC N12
IC M13
HSYNC
TP11
IC K14
IC L14
IC M14
IC N14
IC P14
IC K15
IC L15
IC M15
IC N15
IC P15
CN1
CN2
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15

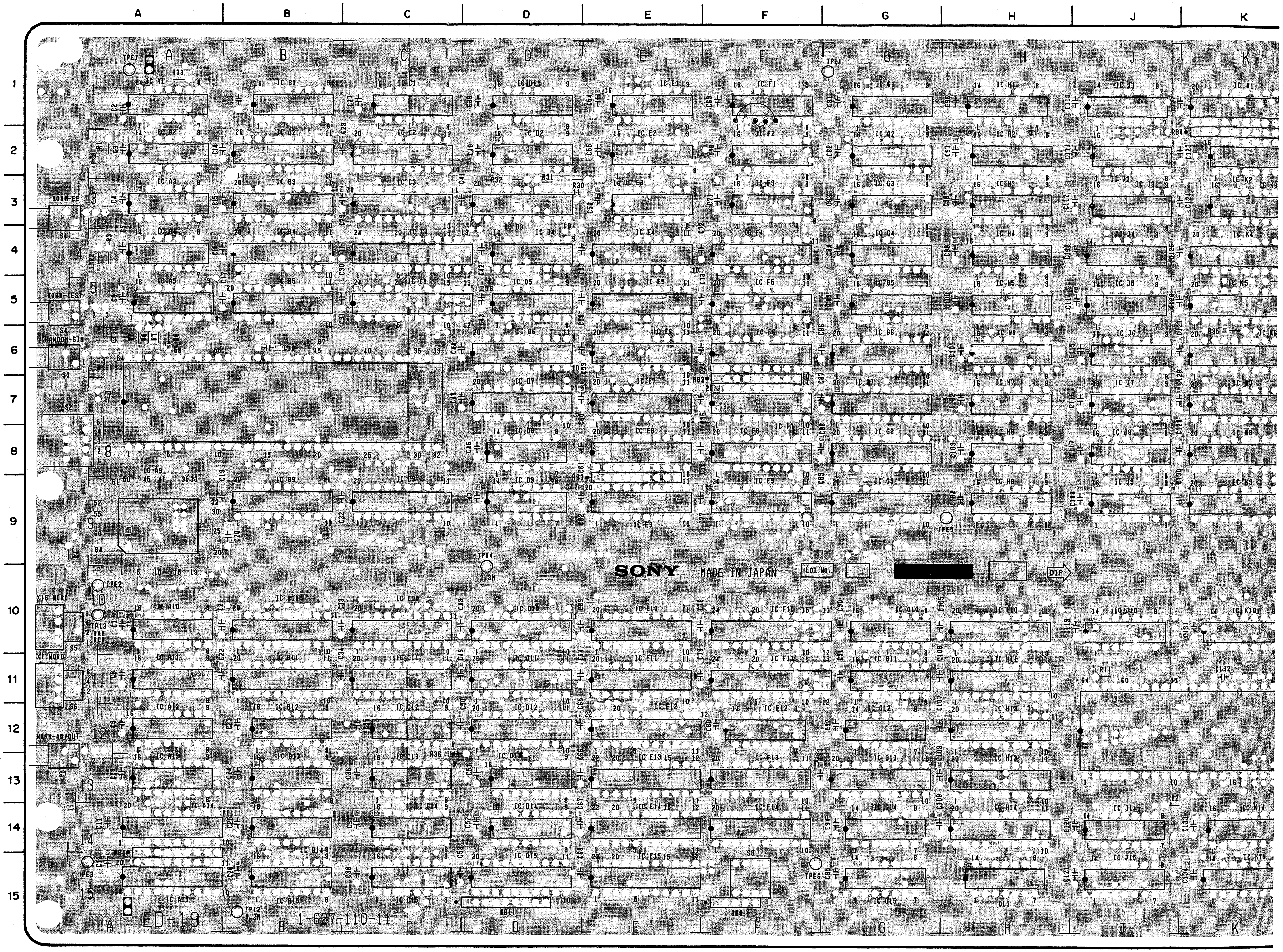
Applied Serial No. 10001 and higher	
Jumpers that have been soldered or cut.	ICF1-1 —×— ICF1-3 ICF1-3 —×— ICF1-5 ICM4-4 —×— ICM4-5 ICF1-1 —— ICF1-5 ICF1-3 —— ICF1-4 ICM4-1 —— ICM4-3

CN1	P-7
CN2	P-10
DL1	H-15
ICA1	A-1
ICA2	A-2
ICA3	A-3
ICA4	A-4
ICA5	A-5
ICA9	A-9
ICA10	A-10
ICA11	A-11
ICA12	A-12
ICA13	A-13
ICA14	A-14
ICA15	A-15
ICB1	B-1
ICB2	B-2
ICB3	B-3
ICB4	B-4
ICB5	B-5
ICB7	B-7
ICB9	B-9
ICB10	B-10
ICB11	B-11
ICB12	B-12
ICB13	B-13
ICB14	B-14
ICB15	B-15
ICC1	C-1
ICC2	C-2
ICC3	C-3
ICC4	C-4
ICC5	C-5
ICC9	C-9
ICC10	C-10
ICC11	C-11
ICC12	C-12
ICC13	C-13
ICC14	C-14
ICC15	C-15
ICD1	D-1
ICD2	D-2
ICD3	D-3
ICD4	D-4
ICD5	D-5
ICD6	D-6
ICD7	D-7
ICD8	D-8
ICD9	D-9
ICD10	D-10
ICD11	D-11
ICD12	D-12
ICD13	D-13
ICD14	D-14
ICD15	D-15
ICE1	E-1
ICE2	E-2
ICE3	E-3
ICE4	E-4
ICE5	E-5
ICE6	E-6
ICE7	E-7
ICE8	E-8
ICE9	E-9
ICE10	E-10
ICE11	E-11
ICE12	E-12
ICE13	E-13
ICE14	E-14
ICE15	E-15
ICF1	F-1
ICF2	F-2
ICF3	F-3
ICF4	F-4
ICF5	F-5
ICF6	F-6
ICF7	F-7
ICF8	F-8
ICF9	F-9
ICF10	F-10
ICF11	F-11
ICF12	F-12
ICF13	F-13
ICF14	F-14
ICG1	G-1
ICG2	G-2
ICG3	G-3
ICG4	G-4
ICG5	G-5
ICG6	G-6
ICG7	G-7
ICG8	G-8
ICG9	G-9
ICG10	G-10
ICG11	G-11
ICG12	H-12
ICG13	G-13
ICG14	G-14
ICG15	G-15
ICH1	H-1
ICH2	H-2
ICH3	H-3
ICH4	H-4
ICH5	H-5
ICH6	H-6
ICH7	H-7
ICH8	H-8
ICH9	H-9
ICH10	H-10
ICH11	H-11
ICH12	H-12
ICH13	H-13
ICH14	H-14
ICJ1	J-1
ICJ2	J-2
ICJ3	J-3
ICJ4	J-4
ICJ5	J-5
ICJ6	J-6
ICJ7	J-7
ICJ8	J-8
ICJ9	J-9
ICJ10	J-10
ICJ14	J-14
ICJ15	J-15
ICK1	K-1
ICK2	K-2
ICK3	K-3
ICK4	K-4
ICK5	K-5
ICK6	K-6
ICK7	K-7
ICK8	K-8
ICK9	K-9
ICK10	K-10
ICK12	K-12
ICK14	K-14
ICK15	K-15
ICL1	L-1
ICL2	L-2
ICL3	L-3
ICL4	L-4
ICL5	L-5
ICL6	L-6
ICL7	L-7
ICL8	L-8
ICL9	L-9
ICL10	L-10
ICL14	L-14
ICL15	L-15
ICM1	M-1
ICM2	M-2
ICM3	M-3
ICM4	M-4
ICM5	M-5
ICM6	M-6
ICM7	M-7
ICM8	M-8
ICM9	M-9
ICM10	M-10
ICM11	M-11
ICM12	M-12
ICM13	M-13
ICM14	M-14
ICM15	M-15
ICN1	N-1
ICN2	N-2
ICN3	N-3
ICN4	N-4
ICN5	N-5
ICN6	N-6
ICN7	N-7
ICN8	N-8
ICN9	N-9
ICN10	N-10
ICN11	N-11
ICN12	N-12
ICN14	N-14
ICN15	N-15
ICP2	P-2
ICP3	P-3
ICP4	P-4
ICP5	P-5
ICP6	P-6
ICP7	P-7
ICP8	P-8
ICP9	P-9
ICP10	P-10
ICP11	P-11
ICP14	P-14
ICP15	P-15
RB1	A-14
RB2	F-7
RB3	E-8
RB4	K-1
RB5	L-1
RB6	P-9
RB7	P-10
RB8	F-15
RB9	P-3
RB10	P-4
RB11	D-15
RB12	P-11
RB13	P-6
RB14	P-8
S1	A-3
S2	A-8
S3	A-6
S4	A-5
S5	A-10
S6	A-11
S7	A-13
S8	F-15
TD14	D-9
TP11	P-13
TP12	B-15
TP13	A-10
TPE1	A-1
TPE2	A-10
TPE3	A-15
TPE4	G-1
TPE5	H-9
TPE6	F-15
TPE7	N-1
TPE8	M-10
TPE9	P-12
X1	A-11
X16	A-10

CARD RACK ED-19 BOARD

ED-19 BOARD (1-627-110-11)
Component Side

S/N; 10001 AND HIGHER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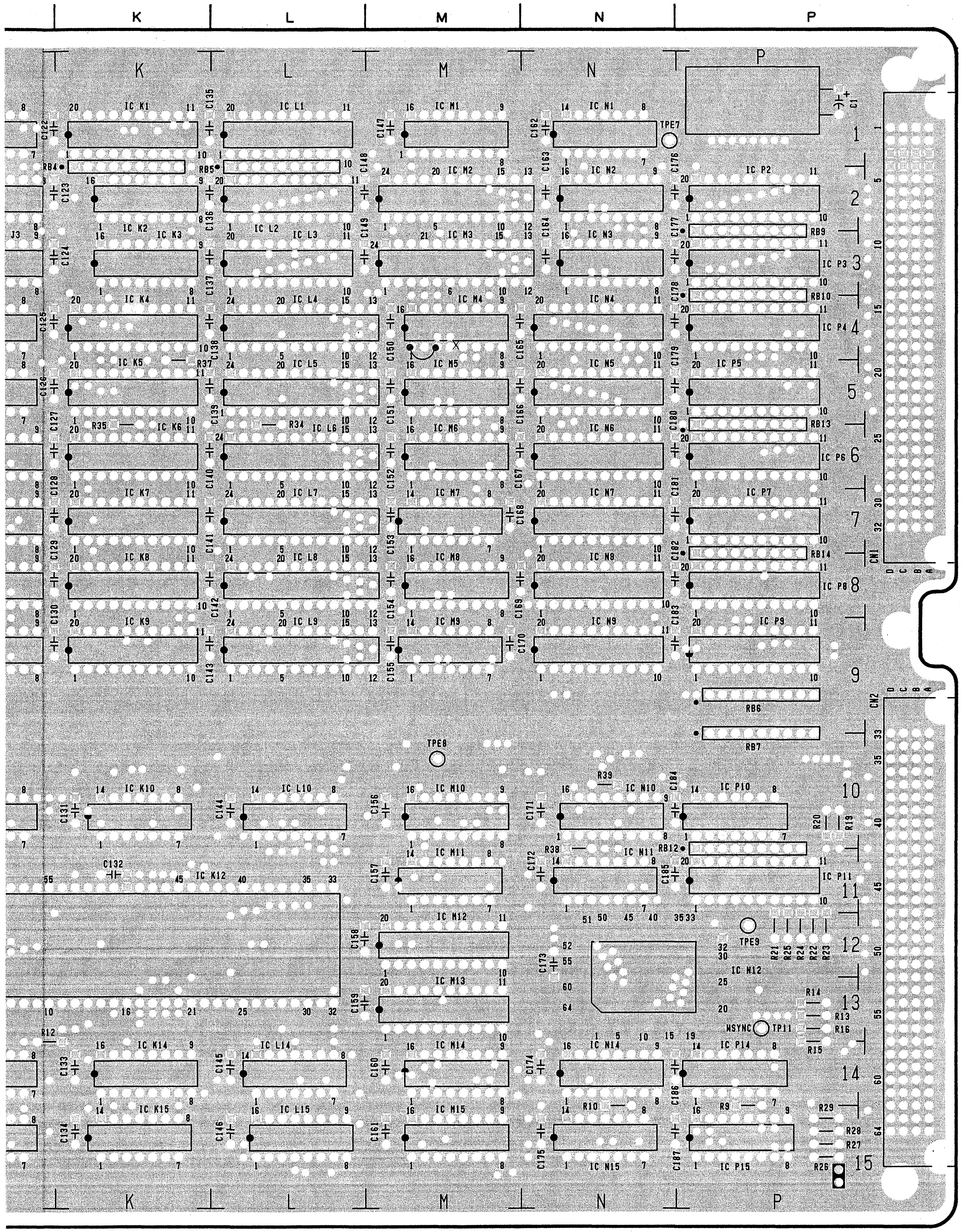
12
13
14
15
NORM-EE
NORM-TEST
RANDOM-SIN
X16 WORD
X1 WORD
NORM-ADVOUT
TPE1
TPE2
TPE3
TPE4
TPE5
TPE6
TP12 9.2M
TP13
TP14 2.3M
SONY
MADE IN JAPAN
LOT NO.
DIP
ED-19
1-627-110-11

▩ INTERNAL SOLDER SIDE PATTERN
▩ INTERNAL COMPONENT SIDE PATTERN

CARD RACK ED-19 BOARD


K
L
M
N
P
IC K1
IC L1
IC M1
IC N1
IC P2
IC M2
IC N2
IC K3
IC L3
IC M3
IC N3
IC P3
IC K4
IC L4
IC M4
IC N4
IC P4
IC K5
IC L5
IC N5
IC M5
IC P5
IC K6
IC L6
IC M6
IC N6
IC P6
IC K7
IC L7
IC M7
IC N7
IC P7
IC K8
IC L8
IC M8
IC N8
IC P8
IC K9
IC L9
IC M9
IC N9
IC P9
IC K10
IC L10
IC M10
IC N10
IC P10
IC K12
IC M11
IC N11
IC P11
IC M12
IC M13
IC K14
IC L14
IC M14
IC N14
IC P14
IC K15
IC L15
IC M15
IC N15
IC P15
RB4
RB5
RB6
RB7
RB9
RB10
RB12
RB13
RB14
R34
R35
R37
R38
R39
R9
R10
TPE7
TPE8
TPE9
HSYNC
TP11
CN1
CN2
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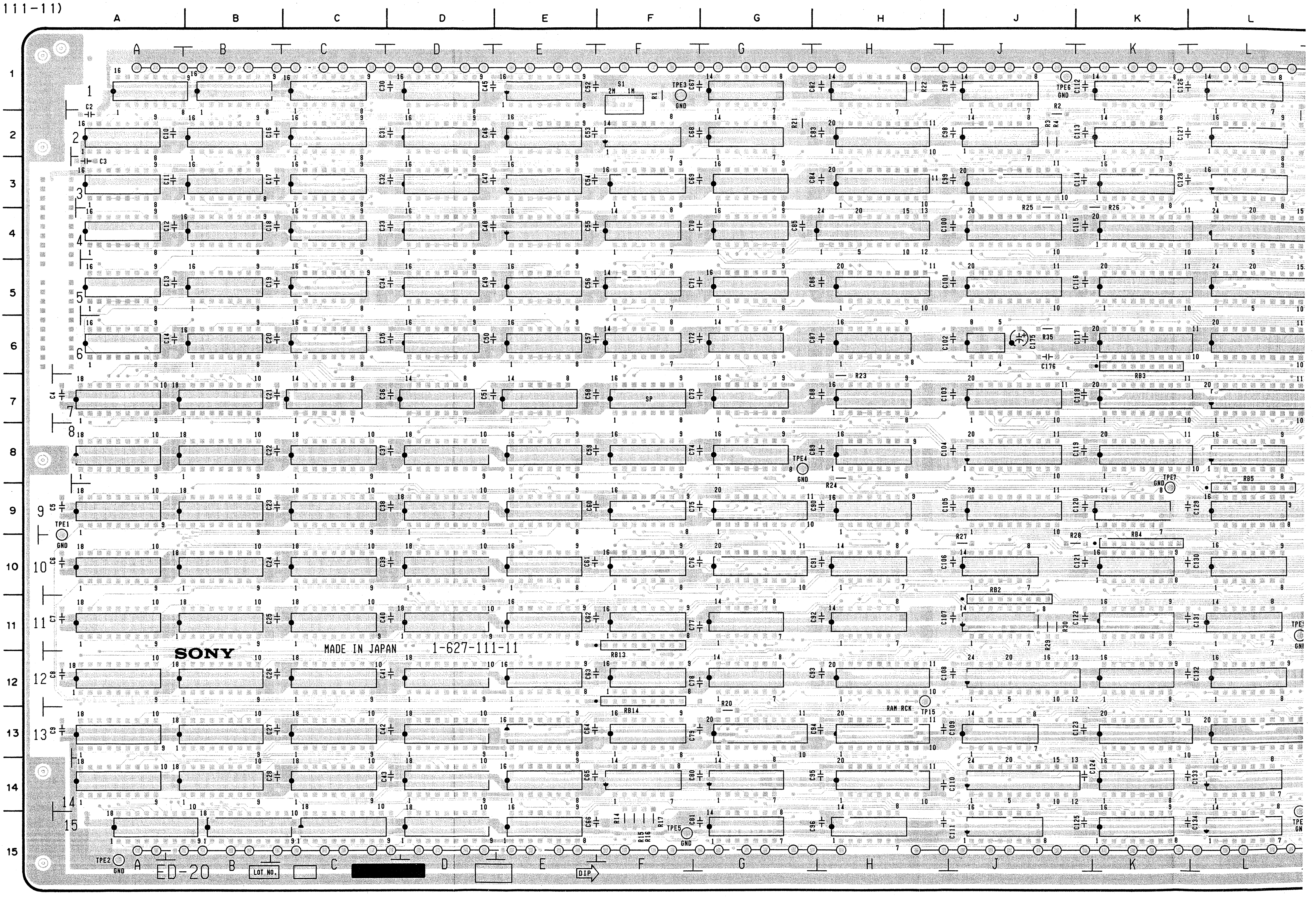
14
15

CN1	P-7	ICE10	E-10	ICK5	K-5	RB4	K-1
CN2	P-10	ICE11	E-11	ICK6	K-6	RB5	L-1
		ICE12	E-12	ICK7	K-7	RB6	P-9
DL1	H-15	ICE13	E-13	ICK8	K-8	RB7	P-10
		ICE14	E-14	ICK9	K-9	RB8	F-15
ICA1	A-1	ICE15	E-15	ICK10	K-10	RB9	P-3
ICA2	A-2			ICK12	K-12	RB10	P-4
ICA3	A-3	ICF1	F-1	ICK14	K-14	RB11	D-15
ICA4	A-4	ICF2	F-2	ICK15	K-15	RB12	P-11
ICA5	A-5	ICF3	F-3			RB13	P-6
ICA9	A-9	ICF4	F-4	ICL1	L-1	RB14	P-8
ICA10	A-10	ICF5	F-5	ICL2	L-2		
ICA11	A-11	ICF6	F-6	ICL3	L-3	S1	A-3
ICA12	A-12	ICF7	F-7	ICL4	L-4	S2	A-8
ICA13	A-13	ICF8	F-8	ICL5	L-5	S3	A-6
ICA14	A-14	ICF9	F-9	ICL6	L-6	S4	A-5
ICA15	A-15	ICF10	F-10	ICL7	L-7	S5	A-10
		ICF11	F-11	ICL8	L-8	S6	A-11
ICB1	B-1	ICF12	F-12	ICL9	L-9	S7	A-13
ICB2	B-2	ICF13	F-13	ICL10	L-10	S8	F-15
ICB3	B-3	ICF14	F-14	ICL14	L-14		
ICB4	B-4			ICL15	L-15	TD14	D-9
ICB5	B-5	ICG1	G-1				
ICB7	B-7	ICG2	G-2	ICM1	M-1	TP11	P-13
ICB9	B-9	ICG3	G-3	ICM2	M-2	TP12	B-15
ICB10	B-10	ICG4	G-4	ICM3	M-3	TP13	A-10
ICB11	B-11	ICG5	G-5	ICM4	M-4		
ICB12	B-12	ICG6	G-6	ICM5	M-5	TPE1	A-1
ICB13	B-13	ICG7	G-7	ICM6	M-6	TPE2	A-10
ICB14	B-14	ICG8	G-8	ICM7	M-7	TPE3	A-15
ICB15	B-15	ICG9	G-9	ICM8	M-8	TPE4	G-1
		ICG10	G-10	ICM9	M-9	TPE5	H-9
ICC1	C-1	ICG11	G-11	ICM10	M-10	TPE6	F-15
ICC2	C-2	ICG12	H-12	ICM11	M-11	TPE7	N-1
ICC3	C-3	ICG13	G-13	ICM12	M-12	TPE8	M-10
ICC4	C-4	ICG14	G-14	ICM13	M-13	TPE9	P-12
ICC5	C-5	ICG15	G-15	ICM14	M-14		
ICC9	C-9			ICM15	M-15	X1	A-11
ICC10	C-10	ICH1	H-1			X16	A-10
ICC11	C-11	ICH2	H-2	ICN1	N-1		
ICC12	C-12	ICH3	H-3	ICN2	N-2		
ICC13	C-13	ICH4	H-4	ICN3	N-3		
ICC14	C-14	ICH5	H-5	ICN4	N-4		
ICC15	C-15	ICH6	H-6	ICN5	N-5		
		ICH7	H-7	ICN6	N-6		
ICD1	D-1	ICH8	H-8	ICN7	N-7		
ICD2	D-2	ICH9	H-9	ICN8	N-8		
ICD3	D-3	ICH10	H-10	ICN9	N-9		
ICD4	D-4	ICH11	H-11	ICN10	N-10		
ICD5	D-5	ICH12	H-12	ICN11	N-11		
ICD6	D-6	ICH13	H-13	ICN12	N-12		
ICD7	D-7	ICH14	H-14	ICN14	N-14		
ICD8	D-8			ICN15	N-15		
ICD9	D-9	ICJ1	J-1				
ICD10	D-10	ICJ2	J-2	ICP2	P-2		
ICD11	D-11	ICJ3	J-3	ICP3	P-3		
ICD12	D-12	ICJ4	J-4	ICP4	P-4		
ICD13	D-13	ICJ5	J-5	ICP5	P-5		
ICD14	D-14	ICJ6	J-6	ICP6	P-6		
ICD15	D-15	ICJ7	J-7	ICP7	P-7		
		ICJ8	J-8	ICP8	P-8		
ICE1	E-1	ICJ9	J-9	ICP9	P-9		
ICE2	E-2	ICJ10	J-10	ICP10	P-10		
ICE3	E-3	ICJ14	J-14	ICP11	P-11		
ICE4	E-4	ICJ15	J-15	ICP14	P-14		
ICE5	E-5			ICP15	P-15		
ICE6	E-6	ICK1	K-1				
ICE7	E-7	ICK2	K-2	RB1	A-14		
ICE8	E-8	ICK3	K-3	RB2	F-7		
ICE9	E-9	ICK4	K-4	RB3	E-8		

Applied Serial No. 10001 and higher	
Jumpers that have been soldered or cut.	ICF1-1 —×— ICF1-3 ICF1-3 —×— ICF1-5 ICM4-4 —×— ICM4-5 ICF1-1 —— ICF1-5 ICF1-3 —— ICF1-4 ICM4-1 —— ICM4-3

CARD RACK ED-20 BOARD

ED-20 BOARD (1-627-111-11)
Component Side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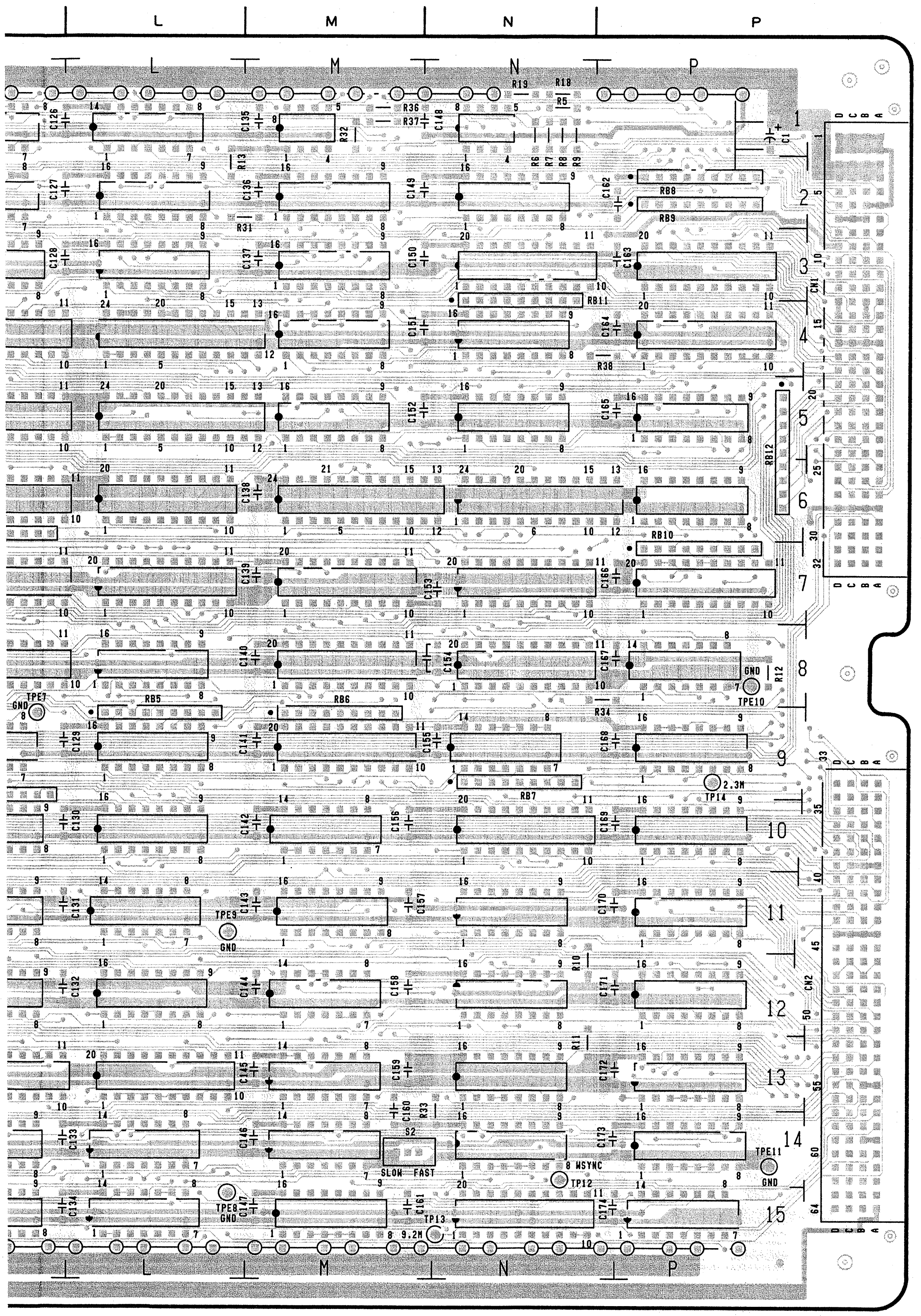
SONY
MADE IN JAPAN
1-627-111-11
ED-20
LOT NO.
DIP
TPE1
TPE2
TPE3
TPE4
TPE5
TPE6
TPE7
TP15
GND
RAM RCK
S1
SP
RB2
RB3
RB4
RB5
RB13
RB14
C175
C176

▨ SOLDER SIDE PATTERN

CARD RACK ED-20 BOARD



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CN3	P-3
ICA1	A-1
ICA2	A-2
ICA3	A-3
ICA4	A-5
ICA5	A-5
ICA6	A-6
ICA7	A-7
ICA8	A-8
ICA9	A-9
ICA10	A-10
ICA11	A-11
ICA12	A-12
ICA13	A-13
ICA14	A-14
ICA15	A-15
ICB1	B-1
ICB2	B-2
ICB3	B-3
ICB4	B-4
ICB5	B-5
ICB6	B-6
ICB7	B-7
ICB8	B-8
ICB9	B-9
ICB10	B-10
ICB11	B-11
ICB12	B-12
ICB13	B-13
ICB14	B-14
ICB15	B-15
ICC1	C-1
ICC2	C-2
ICC3	C-3
ICC4	C-4
ICC5	C-5
ICC6	C-6
ICC7	C-7
ICC8	C-8
ICC9	C-9
ICC10	C-10
ICC11	C-11
ICC12	C-12
ICC13	C-13
ICC14	C-14
ICC15	C-15
ICD1	D-1
ICD2	D-2
ICD3	D-3
ICD4	D-4
ICD5	D-5
ICD6	D-6
ICD7	D-7
ICD8	D-8
ICD9	D-9
ICD10	D-10
ICD11	D-11
ICD12	D-12
ICD13	D-13
ICD14	D-14
ICD15	D-15
ICE1	E-1
ICE2	E-2
ICE3	E-3
ICE4	E-4
ICE5	E-5
ICE6	E-6
ICE7	E-7
ICE8	E-8
ICE9	E-9
ICE10	E-10
ICE11	E-11
ICE12	E-12
ICE13	E-13
ICE14	E-14
ICE15	E-15
ICF2	F-2
ICF3	F-3
ICF4	F-4
ICF5	F-5
ICF6	F-6
ICF7	F-7
ICF8	F-8
ICF9	F-9
ICF10	F-10
ICF11	F-11
ICF12	F-12
ICF13	F-13
ICF14	F-14
ICG1	G-1
ICG2	G-2
ICG3	G-3
ICG4	G-4
ICG5	G-5
ICG6	G-6
ICG7	G-7
ICG8	G-8
ICG9	G-9
ICG10	G-10
ICG11	G-11
ICG12	G-12
ICG13	G-13
ICG14	G-14
ICG15	G-15
ICH1	H-1
ICH2	H-2
ICH3	H-3
ICH4	H-4
ICH5	H-5
ICH6	H-6
ICH7	H-7
ICH8	H-8
ICH9	H-9
ICH10	H-10
ICH11	H-11
ICH12	H-12
ICH13	H-13
ICH14	H-14
ICH15	H-15
ICJ1	J-1
ICJ2	J-2
ICJ3	J-3
ICJ4	J-4
ICJ5	J-5
ICJ6	J-6
ICJ7	J-7
ICJ8	J-8
ICJ9	J-9
ICJ10	J-10
ICJ11	J-11
ICJ12	J-12
ICJ13	J-13
ICJ14	J-14
ICJ15	J-15
ICK1	K-1
ICK2	K-2
ICK3	K-3
ICK4	K-4
ICK5	K-5
ICK6	K-6
ICK7	K-7
ICK8	K-8
ICK9	K-9
ICK10	K-10
ICK11	K-11
ICK12	K-12
ICK13	K-13
ICK14	K-14
ICK15	K-15
ICL1	L-1
ICL2	L-2
ICL3	L-3
ICL4	L-4
ICL5	L-5
ICL6	L-6
ICL7	L-7
ICL8	L-8
ICL9	L-9
ICL10	L-10
ICL11	L-11
ICL12	L-12
ICL13	L-13
ICL14	L-14
ICL15	L-15
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ICM2	M-2
ICM3	M-3
ICM4	M-4
ICM5	M-5
ICM6	M-6
ICM7	M-7
ICM8	M-8
ICM9	M-9
ICM10	M-10
ICM11	M-11
ICM12	M-12
ICM13	M-13
ICM14	M-14
ICM15	M-15
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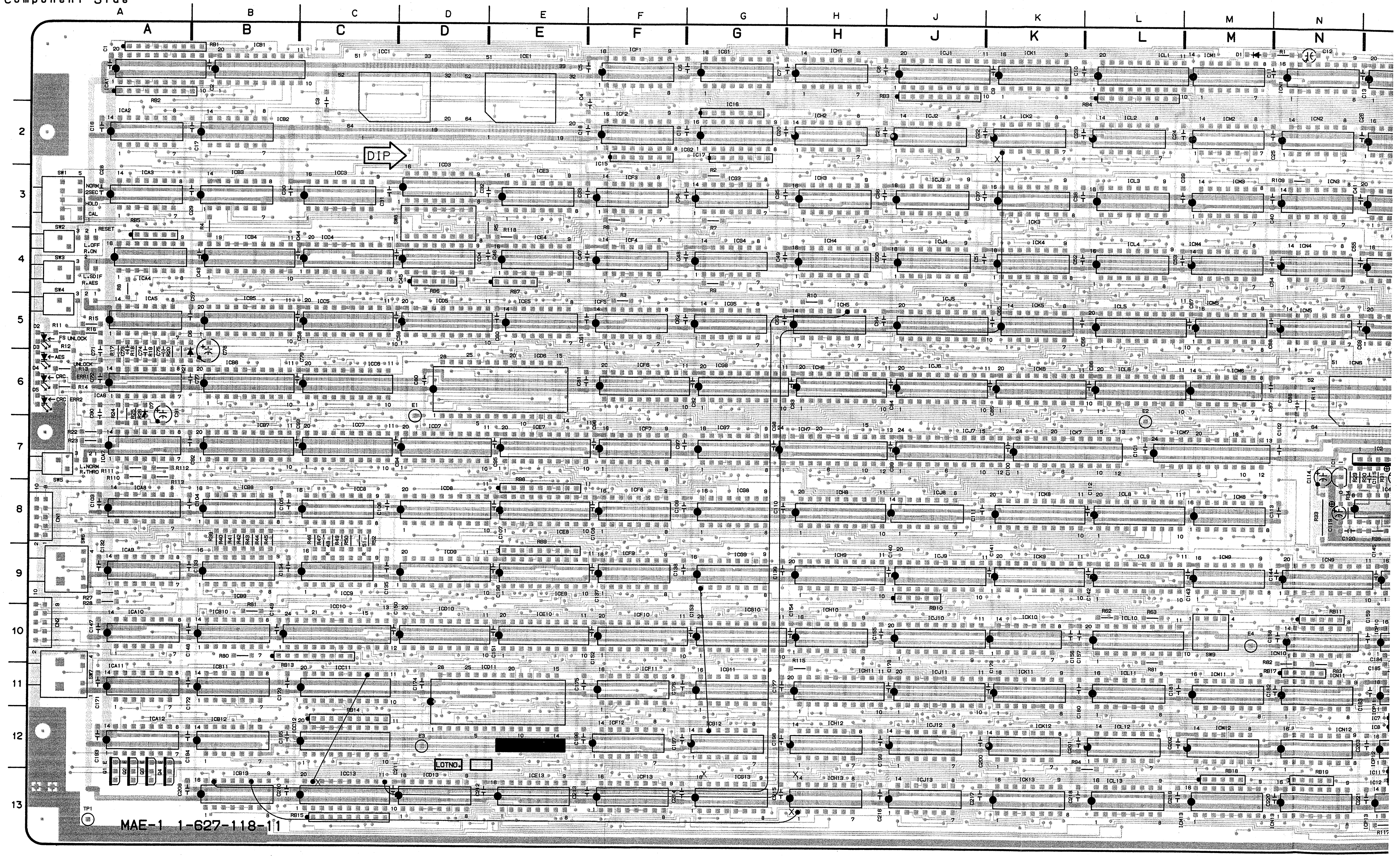
ICN2	N-2
ICN3	N-3
ICN4	N-4
ICN5	N-5
ICN6	N-6
ICN7	N-7
ICN8	N-8
ICN9	N-9
ICN10	N-10
ICN11	N-11
ICN12	N-12
ICN13	N-13
ICN14	N-14
ICN15	N-15
ICP3	P-3
ICP4	P-4
ICP5	P-5
ICP6	P-6
ICP7	P-7
ICP8	P-8
ICP9	P-9
ICP10	P-10
ICP11	P-11
ICP12	P-12
ICP13	P-13
ICP14	P-14
ICP15	P-15
RB2	J-11
RB3	K-6
RB4	K-10
RB5	L-9
RB6	M-9
RB7	N-9
RB8	D-2
RB9	D-2
RB10	P-7
RB11	N-4
RB12	D-6
RB13	F-11
RB14	F-12
S1	F-1
S2	M-14
TP12	N-14
TP13	N-15
TP14	D-10
TP15	H-12
TPE1	A-9
TPE2	A-15
TPE3	F-1
TPE4	G-8
TPE5	F-15
TPE6	J-1
TPE7	K-9
TPE8	L-15
TPE9	L-11
TPE10	D-8
TPE11	P-14

CARD RACK   MAE-1, MAE-2, MAE-3, MAE-4 BOARD

MAE-1 BOARD (1-627-118-11)   S/N; 10001 AND HIGHER

Component Side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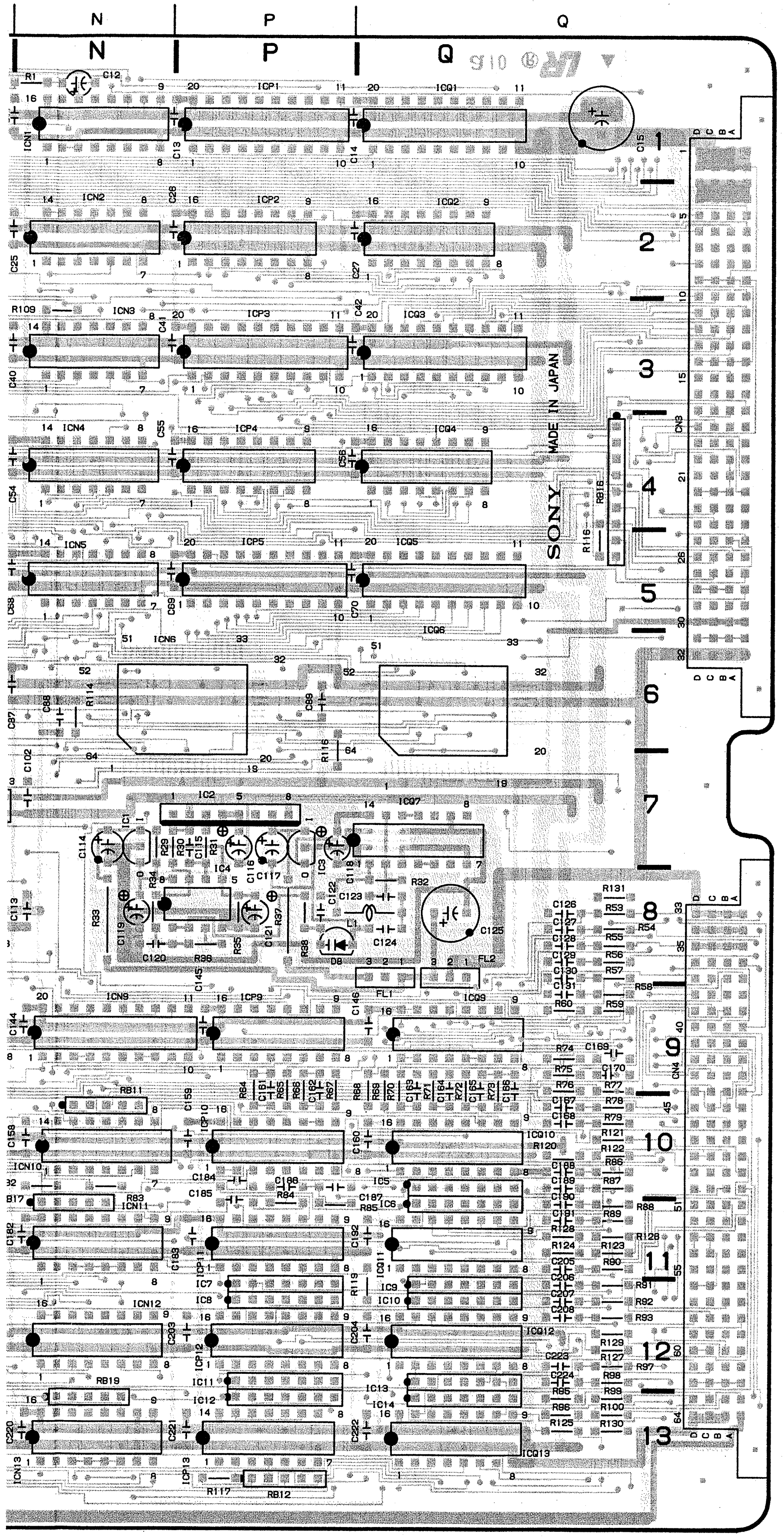
9
10
11
12
13
SW1
NORM
2SEC
HOLD
CAL
SW2
RESET
L.OFF
R.ON
SW3
L.SDIF
R.AES
SW4
FS UNLOCK
AES
UNLOCK
ERR1
CRC
ERR2
CRC
L.NORM
R.THRO
SW5
CN1
SW6
CN2
SW7
DIP
E1
E2
E3
E4
SW8
SW9
LOTNO.
TP1
MAE-1 1-627-118-11

▨ SOLDER SIDE PATTERN

▨ [illegible]


N
P
Q
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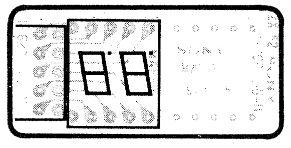
13
SONY
MADE IN JAPAN
ICN1
ICP1
ICQ1
ICN2
ICP2
ICQ2
ICN3
ICP3
ICQ3
ICN4
ICP4
ICQ4
ICN5
ICP5
ICQ5
ICN6
ICQ6
ICN9
ICP9
ICQ9
ICN10
ICN11
ICN12
ICN13
ICP13
ICQ13
RB11
RB17
RB19
RB12
R117
FL1
FL2
CN3
CN4

MAE-2 BOARD (1-627-119-11)
MAE-3 BOARD (1-627-120-11)

Component Side

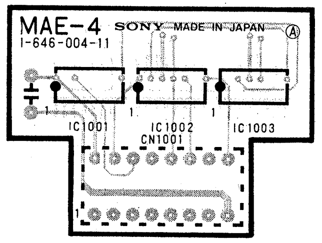


SOLDER SIDE PATTERN

S/N; 20601 AND HIGHER

MAE-4 BOARD (1-646-004-11)

Component Side


MAE-4
SONY
MADE IN JAPAN
1-646-004-11
IC1001
IC1002
IC1003
CN1001

SOLDER SIDE PATTERN

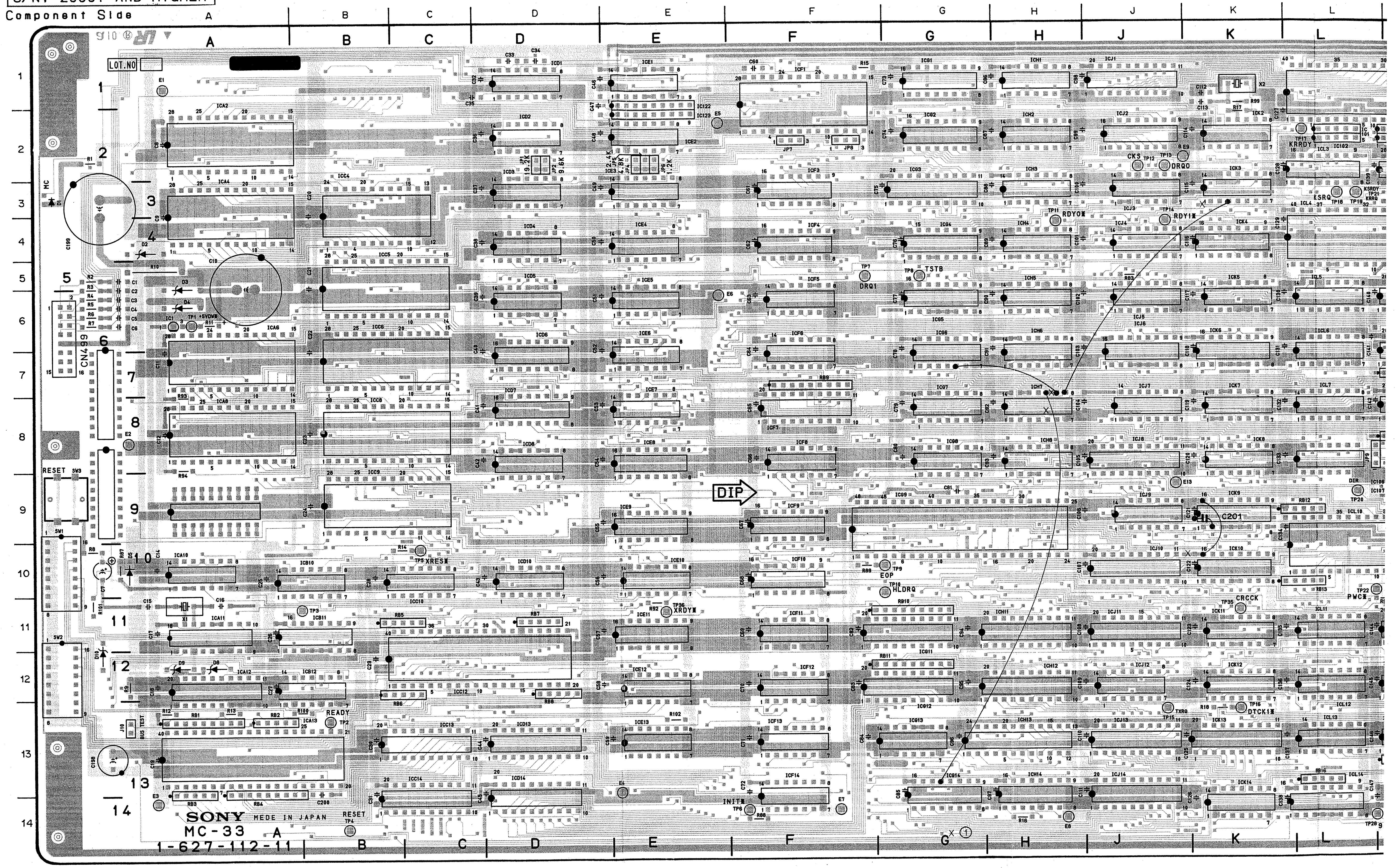
Applied Serial No. 10001 and higher	
Jumpers that have been soldered or cut.	ICH13-1 ⟶✕⟵ ICB13-15 ICH13-1 ⟶✕⟵ ICH5-9 ICC13-18 ⟶✕⟵ ICC13-19 ICK2-1 ⟶✕⟵ ICF12-5 ICG12-13 ⟶✕⟵ ICC13-11 ICC13-19 —— ICC11-13 ICG9-1 —— ICG12-13 ICH5-9 —— ICB13-15 ICH13-1 —— ICB13-11 ICK-2-1 —— ICC13-11

CN1	A-8	ICC5	C-5	ICH12	H-12	ICP2	P-2
CN2	A-10	ICC6	C-6	ICH13	H-13	ICP3	P-3
CN3	Q-4	ICC7	C-7			ICP4	P-4
CN4	Q-9	ICC8	C-8	ICJ1	J-1	ICP5	P-5
		ICC9	C-9	ICJ2	J-2	ICP9	P-9
D1	M-1	ICC10	C-10	ICJ3	J-3	ICP10	P-10
D2	A-5	ICC11	C-11	ICJ4	J-4	ICP11	P-11
D3	A-6	ICC12	C-12	ICJ5	J-5	ICP12	D-12
D4	A-6	ICC13	C-13	ICJ6	J-6	ICP13	D-13
D5	A-6			ICJ7	J-7		
D6	B-6	ICD3	D-3	ICJ8	J-8	ICQ1	Q-1
D7	A-6	ICD4	D-4	ICJ9	J-9	ICQ2	Q-2
D8	P-8	ICD5	D-5	ICJ10	J-10	ICQ3	Q-3
		ICD6	E-6	ICJ11	J-11	ICQ4	Q-4
E1	D-6	ICD7	D-7	ICJ12	J-12	ICQ5	Q-5
E2	L-6	ICD8	D-8	ICJ13	J-13	ICQ6	Q-6
E3	D-12	ICD9	D-9			ICQ7	Q-7
E4	M-10	ICD10	D-10	ICK1	K-1	ICQ9	Q-9
		ICD11	E-11	ICK2	K-2	ICQ10	Q-10
FL1	Q-8	ICD13	D-13	ICK3	K-3	ICQ11	Q-11
FL2	Q-8			ICK4	K-4	ICQ12	Q-12
		ICE1	E-1	ICK5	K-5	ICQ13	Q-13
IC1	N-7	ICE3	E-3	ICK6	K-6		
IC2	P-7	ICE4	E-4	ICK7	K-7	Q1	A-13
IC3	P-7	ICE5	E-5	ICK8	K-8	Q2	A-13
IC4	P-8	ICE7	E-7	ICK9	K-9	Q3	A-13
IC5	Q-10	ICE8	E-8	ICK10	K-10	Q4	A-13
IC6	Q-11	ICE9	E-9	ICK11	K-11		
IC7	D-12	ICE10	E-10	ICK12	K-12	RB1	A-1
IC8	D-12	ICE13	E-13	ICK13	K-13	RB2	A-1
IC9	Q-12					RB3	J-1
IC10	Q-12	ICF1	F-1	ICL1	L-1	RB4	L-1
IC11	D-12	ICF2	F-2	ICL2	L-2	RB5	A-4
IC12	D-13	ICF3	F-3	ICL3	L-3	RB6	D-4
IC13	Q-12	ICF4	F-4	ICL4	L-4	RB7	E-4
IC14	Q-13	ICF5	F-5	ICL5	L-5	RB8	E-8
IC15	F-2	ICF6	F-6	ICL6	L-6	RB9	E-9
IC16	G-2	ICF7	F-7	ICL8	L-8	RB10	J-9
IC17	G-2	ICF8	F-8	ICL9	L-9	RB11	N-10
		ICF9	F-9	ICL10	L-10	RB12	D-13
ICA1	A-1	ICF10	F-10	ICL11	L-11	RB13	C-10
ICA2	A-2	ICF11	F-11	ICL12	L-12	RB14	C-12
ICA3	A-3	ICF12	F-12	ICL13	L-13	RB15	C-13
ICA4	A-4	ICF13	F-13			RB16	Q-4
ICA5	A-5			ICM1	M-1	RB17	N-11
ICA6	A-6	ICG1	G-1	ICM2	M-2	RB18	M-13
ICA7	A-7	ICG2	G-2	ICM3	M-3	RB19	N-13
ICA8	A-8	ICG3	G-3	ICM4	M-4		
ICA9	A-9	ICG4	G-4	ICM5	M-5	SW1	A-3
ICA10	A-10	ICG5	G-5	ICM6	M-6	SW2	A-4
ICA11	A-11	ICG6	G-6	ICM7	M-7	SW3	A-4
ICA12	A-12	ICG7	G-7	ICM8	M-8	SW4	A-5
		ICG8	G-8	ICM9	M-9	SW5	A-7
ICB1	B-1	ICG9	G-9	ICM11	M-11	SW6	A-9
ICB2	B-2	ICG10	G-10	ICM12	M-12	SW7	A-11
ICB3	B-3	ICG11	G-11	ICM13	M-13	SW8	D-3
ICB4	B-4	ICG12	G-12			SW9	M-10
ICB5	B-5	ICG13	G-13	ICN1	N-1		
ICB6	B-6			ICN2	N-2	TP1	A-13
ICB7	B-7	ICH1	H-1	ICN3	N-3		
ICB8	B-8	ICH2	H-2	ICN4	N-4		
ICB9	B-9	ICH3	H-3	ICN5	N-5		
ICB10	B-10	ICH4	H-4	ICN6	P-6		
ICB11	B-11	ICH5	H-5	ICN9	N-9		
ICB12	B-12	ICH6	H-6	ICN10	N-10		
ICB13	B-13	ICH7	H-7	ICN11	N-11		
		ICH8	H-8	ICN12	N-12		
ICC1	C-1	ICH9	H-9	ICN13	N-13		
ICC3	C-3	ICH10	H-10				
ICC4	C-4	ICH11	H-11	ICP1	P-1		

MC-33/33A BOARD (1-627-112-11)

S/N; 10301 TO 12803,
S/N; 20001 AND HIGHER

Component Side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CN499
RESET
SW3
SW1
SW2
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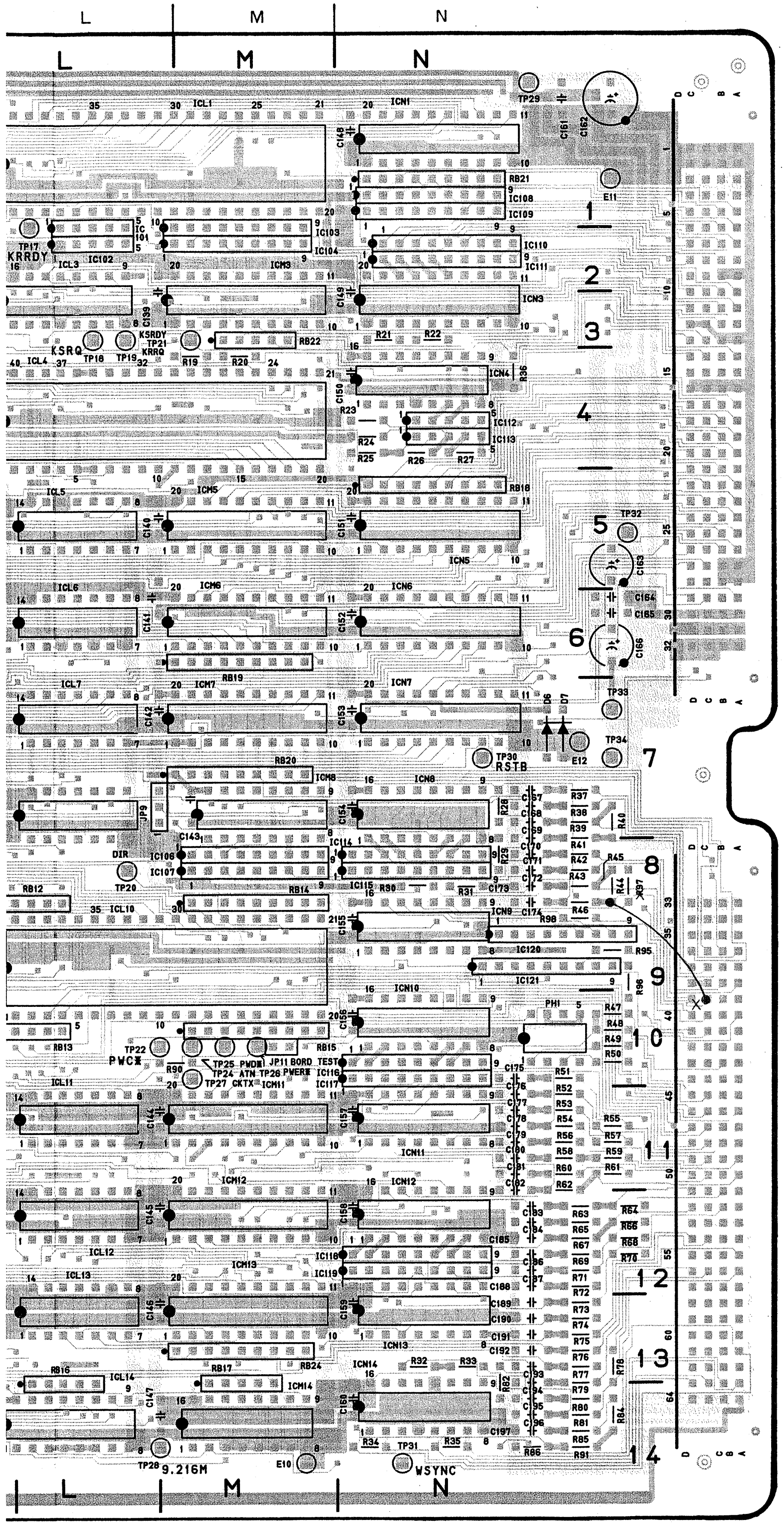
SONY MEDE IN JAPAN
MC-33
1-627-112-11
RESET
READY
INIT
XRES
XRDY
HLDRQ
EOP
DRQ1
TSTB
RDY0
RDY1
CKS
DRQ0
KRRDY
KSRQ
KSRDY
KRRQ
DIR
CRCCK
PWC
TXRQ
DTCKI
C201
+5VDVM

■ SOLDER SIDE PATTERN

CARD RACK MC-33/33A BOARD

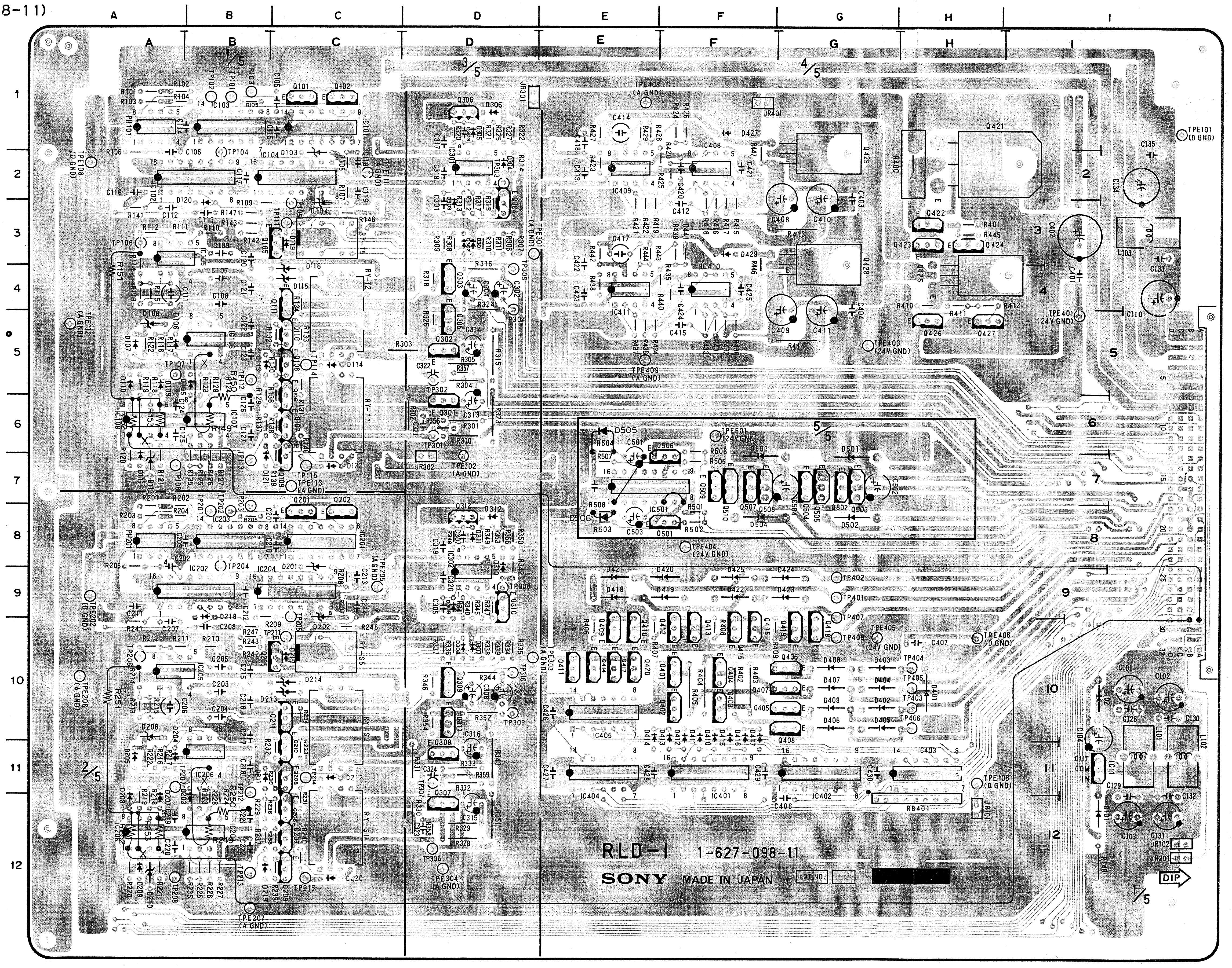


Applied Serial No. 10001 and higher	
Jumpers that have been soldered or cut.	39C (DIN CONNECTOR) -×- 39D (DIN CONNECTOR) ICH7-9 -×- ICH7-10 ICH7-10 -×- T.H. ICK3-3 -×- T.H. ICK10-16 -×- ICK9-16 ICK10-16 -×- T.H. R44 -×- 39D (DIN CONNECTOR) ICH7-9 — ICG5-5 ICH7-10 — ICG14-13 ICK3-3 — ICH7-8 R44 — 39C (DIN CONNECTOR) ① (See the board)
Parts marked with ■ that have been installed on the solder side.	■ C201 ICK9-2 — GND (C121)

CN499	A-6
D1	A-3
D2	A-4
D3	A-5
D4	A-6
D5	A-10
D6	N-8
D7	N-8
D8	A-12
D9	A-12
D10	A-12
E1	A-1
E2	A-8
E3	A-14
E4	E-13
E5	E-2
E6	E-6
E7	F-14
E8	H-14
E9	J-2
E10	M-14
E11	N-2
E12	N-8
E13	J-9
IB12	L-9
IC1	A-6
IC101	L-2
IC102	L-2
IC103	M-2
IC104	M-2
IC106	M-9
IC107	M-9
IC112	N-4
IC113	N-4
IC114	N-9
IC115	N-9
IC116	N-11
IC117	N-11
IC118	N-13
IC119	N-13
IC120	N-9
IC121	N-10
IC122	E-2
IC123	E-2
ICA2	A-2
ICA4	A-3
ICA6	A-7
ICA8	A-8
ICA10	A-10
ICA11	A-11
ICA12	A-12
ICA13	A-13
ICB10	B-10
ICB11	B-11
ICB12	B-12
ICC4	B-3
ICC5	B-5
ICC6	B-6
ICC8	B-8
ICC9	B-9
ICC10	C-10
ICC12	C-12
ICC13	C-13
ICC14	C-14
ICD1	D-1
ICD2	D-2
ICD3	D-3
ICD4	D-4
ICD5	D-6
ICD6	D-7
ICD7	D-8
ICD8	D-8
ICD10	D-10
ICD13	D-13
ICD14	D-14
ICE1	E-1
ICE2	E-2
ICE3	E-3
ICE4	E-4
ICE5	E-6
ICE6	E-7
ICE7	E-8
ICE8	
ICE9	E-9
ICE10	E-10
ICE11	E-11
ICE12	E-12
ICE13	E-13
ICF1	F-2
ICF3	F-3
ICF4	F-4
ICF5	F-6
ICF6	F-7
ICF7	F-8
ICF8	F-8
ICF9	F-9
ICF10	F-10
ICF11	F-11
ICF12	F-12
ICF13	F-13
ICF14	F-14
ICG1	G-1
ICG2	G-2
ICG3	G-3
ICG4	G-4
ICG5	G-6
ICG6	G-7
ICG7	G-8
ICG8	G-8
ICG9	G-9
ICG11	G-11
ICG12	G-12
ICG13	G-13
ICG14	G-14
ICH1	H-1
ICH2	H-2
ICH3	H-3
ICH4	H-4
ICH5	H-6
ICH6	H-7
ICH7	H-8
ICH8	H-8
ICH11	H-11
ICH12	H-12
ICH13	H-13
ICH14	H-14
ICJ1	J-1
ICJ2	J-2
ICJ3	J-3
ICJ4	J-4
ICJ5	J-6
ICJ6	J-7
ICJ7	J-8
ICJ8	J-8
ICJ9	J-9
ICJ10	J-10
ICJ11	J-11
ICJ12	J-12
ICJ13	J-13
ICJ14	J-14
ICK2	K-2
ICK3	K-3
ICK4	K-4
ICK5	K-6
ICK6	K-7
ICK7	K-8
ICK8	K-8
ICK9	K-9
ICK10	K-10
ICK11	K-11
ICK12	K-12
ICK13	K-13
ICK14	K-14
ICL1	L-1
ICL3	L-2
ICL4	L-4
ICL5	L-6
ICL6	L-7
ICL7	L-8
ICL8	L-8
ICL10	L-10
ICL11	L-11
ICL12	L-12
ICL13	L-13
ICL14	L-14
ICM3	N-2
ICM5	M-6
ICM6	M-7
ICM7	M-8
ICM8	M-8
ICM11	M-11
ICM12	M-12
ICM13	M-13
ICM14	M-14
ICN1	N-1
ICN4	N-4
ICN5	N-6
ICN6	N-7
ICN7	N-8
ICN8	N-8
ICN9	N-9
ICN10	N-10
ICN11	N-11
ICN12	N-12
ICN13	N-13
ICN14	N-14
PH1	N-10
RB1	A-13
RB2	A-13
RB3	A-13
RB4	A-13
RB5	C-11
RB6	C-12
RB7	D-11
RB8	D-12
RB9	F-7
RB10	G-11
RB11	G-12
RB12	L-8
RB13	L-10
RB14	M-9
RB15	M-10
RB16	L-13
RB17	M-13
RB18	N-5
RB19	M-7
RB20	M-8
RB21	N-1
RB22	M-3
RB24	M-13
SW1	A-10
SW2	A-12
SW3	A-9
TP1	A-6
TP2	B-13
TP3	B-11
TP4	B-14
TP5	C-10
TP6	F-14
TP7	F-5
TP8	G-5
TP9	G-10
TP10	G-11
TP11	H-4
TP12	J-2
TP13	J-2
TP14	J-4
TP15	J-13
TP16	K-13
TP17	L-2
TP18	L-3
TP19	L-3
TP20	L-8
TP21	M-3
TP22	L-11
TP24	M-11
TP25	M-11
TP26	M-11
TP27	M-11
TP28	L-14
TP29	N-1
TP30	N-8
TP31	N-14
TP32	N-6
TP33	N-8
TP34	N-8
TP35	K-11
TP36	E-11
TP108	N-2
TP109	N-2
TP110	N-2
TP111	N-2
X1	A-11
X2	K-1

RLD-1 BOARD (1-627-098-11)
Component Side

S/N; 10001 TO 10100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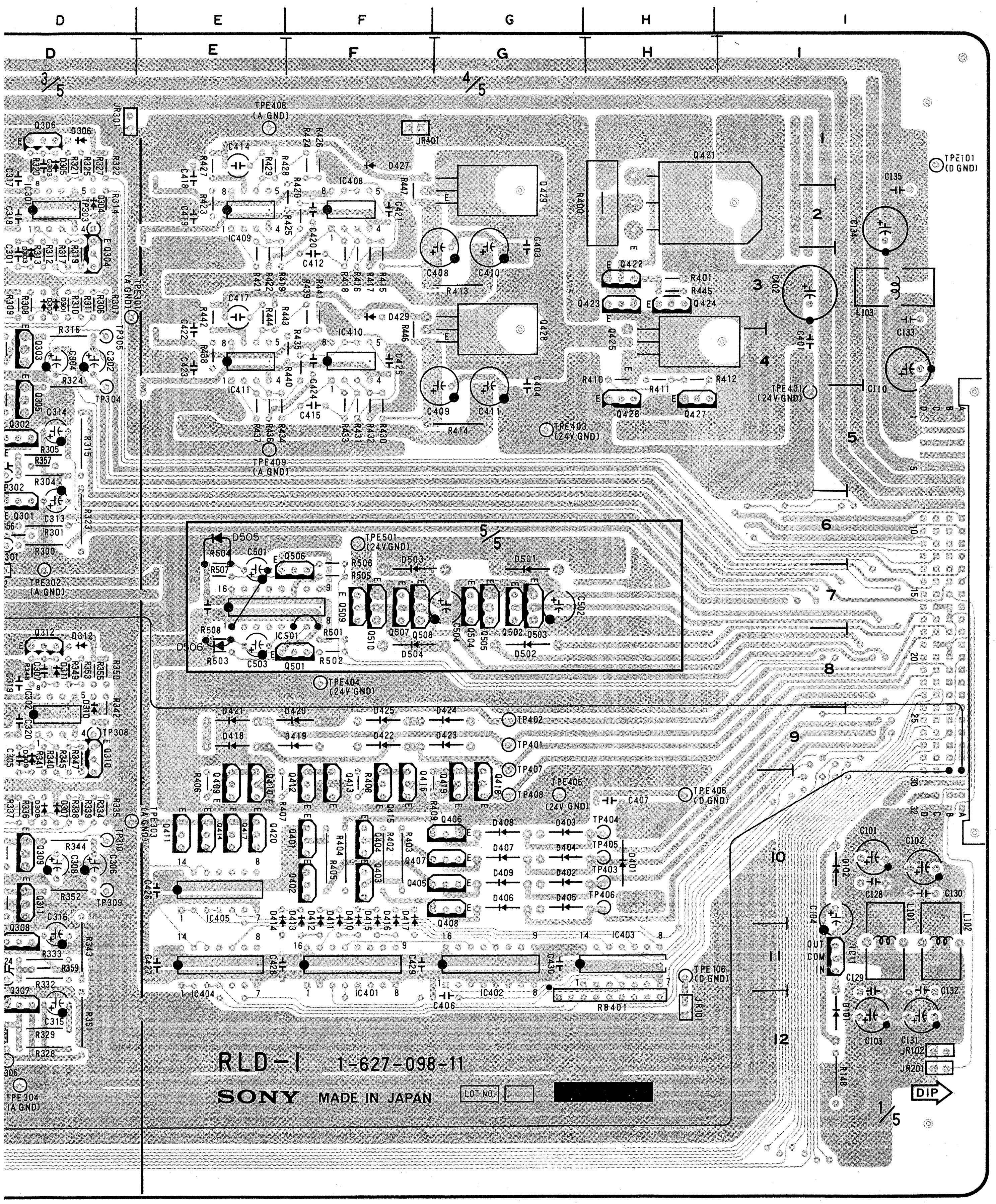
RLD-1 1-627-098-11
SONY MADE IN JAPAN
LOT NO.
DIP

■ SOLDER SIDE PATTERN

Applied Ser
Jumpers tha soldered or
Parts marke that have b on the solde

CARD RACK RLD-1 BOARD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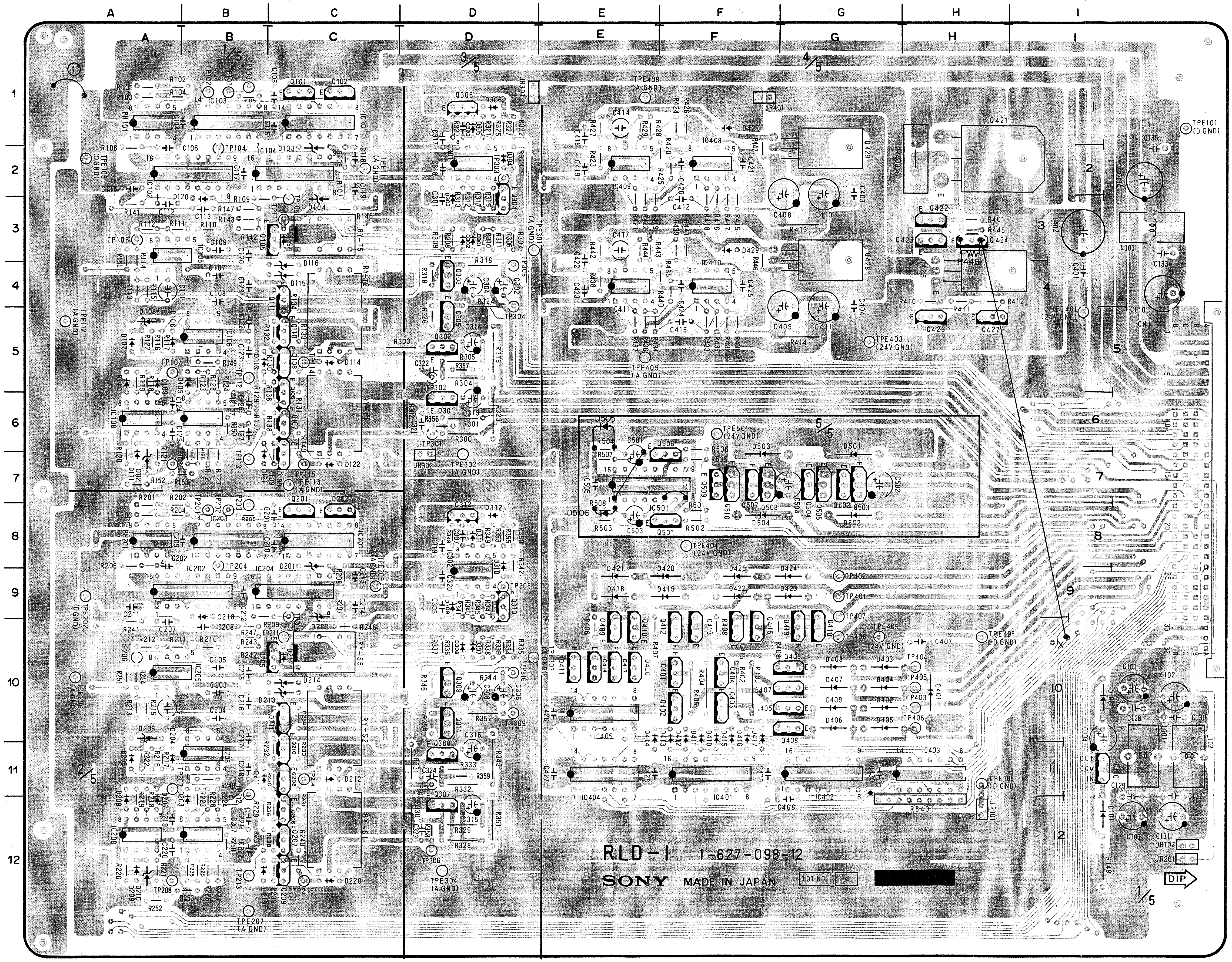
TPE408 (A GND)
TPE409 (A GND)
TPE101 (D GND)
TPE401 (24V GND)
TPE403 (24V GND)
TPE501 (24V GND)
TPE404 (24V GND)
TPE405 (24V GND)
TPE406 (D GND)
TPE106 (D GND)
TPE301 (A GND)
TPE302 (A GND)
TPE303 (A GND)
TPE304 (A GND)
IC401
IC402
IC403
IC404
IC405
IC408
IC409
IC410
IC411
IC501
Q421
Q428
Q429
RB401
DIP
RLD-1 1-627-098-11
SONY MADE IN JAPAN
LOT NO.

Applied Serial No. Up to 10100	
Jumpers that have been soldered or cut.	IC106-3 -×- IC107-6 IC108-2 -×- IC108-3 IC206-3 -×- IC207-6 IC208-2 -×- IC208-3 IC108-1 —— CN1-29A IC208-1 —— CN1-29B
Parts marked with ■ that have been installed on the solder side.	■ R149 ■ R250 ■ R150 ■ R251 ■ R151 ■ R252 ■ R152 ■ R253 ■ R153 ■ D505 ■ R249 ■ D506

CI105	A-3
D101	I-12
D102	I-10
D103	C-2
D104	C-3
D105	B-5
D106	A-5
D107	A-5
D108	A-5
D109	A-5
D110	A-5
D111	A-7
D112	A-7
D113	B-5
D114	C-5
D115	C-4
D116	D-4
D119	C-3
D120	B-3
D121	B-7
D122	C-7
D201	C-8
D202	C-9
D203	B-12
D204	A-11
D205	A-11
D206	A-10
D207	A-12
D208	A-12
D209	A-12
D210	A-12
D211	B-11
D212	C-11
D213	C-10
D214	C-10
D217	C-10
D218	B-9
D219	B-12
D220	C-12
D301	D-3
D302	D-3
D303	D-3
D304	D-2
D305	D-1
D306	D-1
D307	D-10
D308	D-10
D309	D-9
D310	D-9
D311	D-8
D312	D-8
D401	H-10
D402	G-10
D403	G-10
D404	G-10
D405	G-10
D406	G-10
D407	G-10
D408	G-10
D409	G-10
D410	D-10
D411	D-10
D412	D-10
D413	D-10
D414	E-10
D415	D-10
D416	D-10
D417	D-10
D418	E-9
D419	F-9
D420	F-9
D421	E-9
D422	F-9
D423	G-9
D424	G-9
D425	F-9
D427	F-1
D429	F-3
D501	G-7
D502	G-8
D503	F-7
D504	F-8
IC11	I-11
IC018	A-6
IC101	C-1
IC102	B-2
IC103	B-1
IC104	C-2
IC106	B-5
IC107	B-6
IC201	C-8
IC202	B-9
IC203	B-8
IC204	C-9
IC205	A-10
IC206	B-11
IC207	B-12
IC208	A-12
IC301	D-2
IC302	D-9
IC401	F-11
IC402	G-11
IC403	H-11
IC404	E-11
IC405	E-10
IC408	F-2
IC409	E-2
IC410	F-4
IC411	E-4
IC501	E-7
PH101	A-1
PH201	A-8
Q101	C-1
Q102	C-1
Q105	C-3
Q106	C-6
Q107	C-6
Q108	C-5
Q109	C-7
Q110	C-5
Q111	C-4
Q201	C-8
Q202	C-8
Q205	C-10
Q206	C-12
Q207	C-12
Q208	C-11
Q209	C-12
Q210	C-11
Q211	C-10
Q301	D-6
Q302	D-5
Q303	D-4
Q304	D-3
Q305	D-5
Q306	D-1
Q307	D-12
Q308	D-11
Q309	D-10
Q310	D-9
Q311	D-10
Q312	D-8
Q401	D-10
Q402	D-10
Q403	D-10
Q404	D-10
Q405	G-10
Q406	G-10
Q407	G-10
Q408	D-10
Q408	G-10
Q409	E-10
Q410	E-10
Q411	E-10
Q412	D-10
Q413	D-10
Q414	E-10
Q416	D-10
Q417	E-10
Q418	G-10
Q419	G-10
Q420	E-10
Q421	H-2
Q422	H-3
Q423	H-3
Q424	H-3
Q425	H-4
Q426	H-5
Q427	H-5
Q428	G-4
Q429	G-2
Q501	F-8
Q502	G-7
Q503	G-7
Q504	G-7
Q505	G-7
Q507	F-7
Q508	F-7
Q509	F-7
Q510	F-7
RB401	H-12
RY-S1	C-12
RY-S2	C-10
RY-S5	C-10
RY-T1	C-6
RY-T2	C-4
RY-T5	C-3
TP101	B-1
TP102	B-1
TP103	B-1
TP104	B-2
TP105	C-3
TP106	A-3
TP107	A-5
TP108	A-7
TP111	C-3
TP112	B-5
TP113	B-7
TP114	C-5
TP115	C-7
TP201	B-8
TP202	B-8
TP203	B-8
TP204	B-8
TP205	C-10
TP206	A-10
TP207	A-11
TP208	A-12
TP211	C-10
TP212	B-11
TP213	B-12
TP214	C-11
TP215	C-12
TP301	D-6
TP302	D-5
TP303	D-2
TP304	D-4
TP305	D-4
TP306	D-12
TP307	D-11
TP309	D-10
TP310	D-10
TP401	G-9
TP402	G-9
TP403	H-10
TP404	H-10
TP405	H-10
TP406	H-10
TP407	G-9
TP408	G-10
TPE101	I-1
TPE106	H-11
TPE108	A-2
TPE111	C-2
TPE112	A-5
TPE113	C-7
TPE202	A-9
TPE205	C-9
TPE206	A-10
TPE207	B-12
TPE301	D-3
TPE302	D-7
TPE304	D-12
TPE310	D-10
TPE401	I-5
TPE403	G-5
TPE404	F-8
TPE405	G-10
TPE406	H-10
TPE408	E-1
TPE409	E-5
TPE501	F-6

RLD-1 BOARD (1-627-098-12) S/N; 10101 TO 10300
Component Side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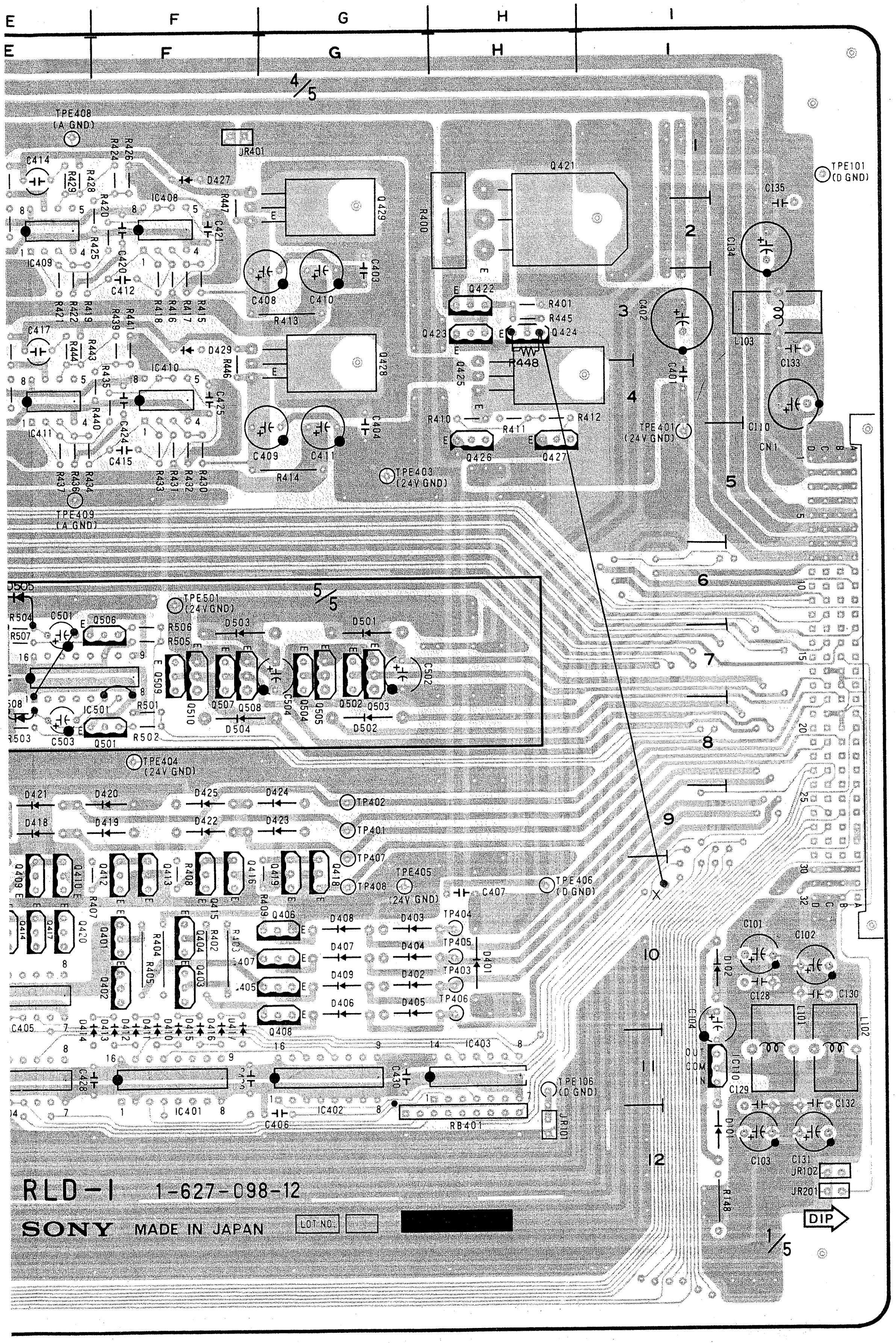
TPE101 (D GND)
TPE108 (D GND)
TPE112 (A GND)
TPE202 (D GND)
TPE206 (A GND)
TPE207 (A GND)
TPE304 (A GND)
TPE401 (24V GND)
TPE403 (24V GND)
TPE404 (24V GND)
TPE405 (24V GND)
TPE406 (D GND)
TPE408 (A GND)
TPE409 (A GND)
TPE501 (24V GND)
TPE106 (D GND)
CN1
RB401
RLD-1 1-627-098-12
SONY MADE IN JAPAN
LOT NO.
DIP

■ SOLDER SIDE PATTERN

Applied Serial No. 10100 to 10300	
Jumpers that have been soldered or cut.	RB401-9 ─✕─ CN1 IC501-1 ── C501 IC501-6 ── IC50 CN1-25A ── Q42 ① (See the board
Parts marked with ■ that have been installed on the solder side.	■ D505 ■ D506 ■ R448

CARD RACK RLD-1 BOARD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RLD-1 1-627-098-12
SONY MADE IN JAPAN
LOT NO.
DIP
4/5
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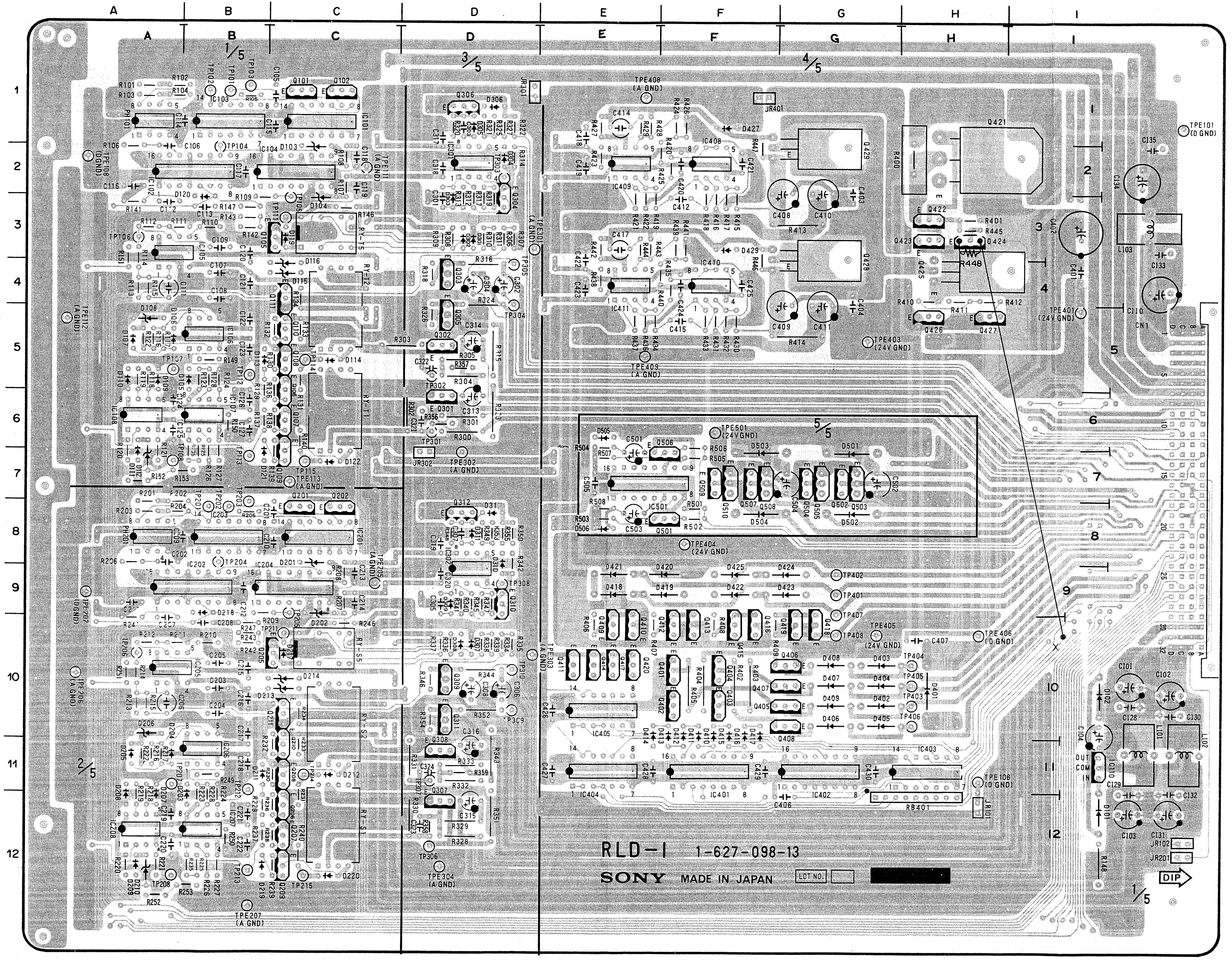
1/5
TPE408 (A GND)
TPE409 (A GND)
TPE101 (D GND)
TPE401 (24V GND)
TPE403 (24V GND)
TPE501 (24V GND)
TPE404 (24V GND)
TPE405 (24V GND)
TPE406 (D GND)
TPE106 (D GND)
Q421
Q422
Q423
Q424
Q425
Q426
Q427
Q428
Q429
R448
IC403
IC402
IC401
IC408
IC409
IC410
IC411
IC501
RB401
CN1
JR101
JR102
JR201
JR401
L101
L102
L103
OUT
COM
IN

Applied Serial No. 10100 to 10300	
Jumpers that have been soldered or cut.	RB401-9 -✕- CN1-25A IC501-1 — C501 (−side) IC501-6 — IC501-8 CN1-25A — Q424-B ① (See the board.)
Parts marked with ■ that have been installed on the solder side.	■ D505 ■ D506 ■ R448

D101	I-12
D102	I-10
D103	C-2
D104	C-3
D105	B-5
D106	A-5
D107	A-5
D108	A-5
D109	A-5
D110	A-5
D111	A-7
D112	A-7
D113	B-5
D114	C-5
D115	C-4
D116	C-4
D119	C-3
D120	B-3
D121	B-7
D122	C-7
D201	C-8
D202	C-9
D203	B-12
D204	A-11
D205	A-11
D206	A-10
D207	A-12
D208	A-12
D209	A-12
D210	A-12
D211	B-11
D212	C-11
D213	C-10
D214	C-10
D217	C-10
D218	B-9
D219	B-12
D220	C-12
D301	D-3
D302	D-3
D303	D-3
D304	D-2
D305	D-1
D306	D-1
D307	D-10
D308	D-10
D309	D-9
D310	D-9
D311	D-8
D312	D-8
D401	H-10
D402	G-10
D403	G-10
D404	G-10
D405	G-10
D406	G-10
D407	G-10
D408	G-10
D409	G-10
D410	F-10
D411	F-10
D412	F-10
D413	F-10
D414	E-10
D415	F-10
D416	F-10
D417	F-10
D418	E-9
D419	F-9
D420	F-9
D421	E-9
D422	F-9
D423	G-9
D424	G-9
D425	F-9
D427	F-1
D429	F-3
D501	G-7
D502	G-8
D503	F-7
D504	F-8
IC101	C-1
IC102	B-2
IC103	B-1
IC104	C-2
IC105	A-3
IC106	B-5
IC107	B-6
IC108	A-6
IC201	C-8
IC202	B-9
IC203	B-8
IC204	C-9
IC205	A-10
IC206	B-11
IC207	B-12
IC208	A-12
IC301	D-2
IC302	D-9
IC401	F-11
IC402	G-11
IC403	H-11
IC404	E-11
IC405	E-10
IC408	F-2
IC409	E-2
IC410	F-4
IC411	E-4
IC501	E-7
PH101	A-1
PH201	A-8
Q101	C-1
Q102	C-1
Q105	C-3
Q106	C-6
Q107	C-6
Q108	C-5
Q109	C-7
Q110	C-5
Q111	C-4
Q201	C-8
Q202	C-8
Q205	C-10
Q206	C-12
Q207	C-12
Q208	C-11
Q209	C-12
Q210	C-11
Q211	C-10
Q301	D-6
Q302	D-5
Q303	D-4
Q304	D-3
Q305	D-5
Q306	D-1
Q307	D-12
Q308	D-11
Q309	D-10
Q310	D-9
Q311	D-10
Q312	D-8
Q401	F-10
Q402	F-10
Q403	F-10
Q404	F-10
Q405	G-10
Q406	G-10
Q407	G-10
Q408	G-10
Q409	E-10
Q410	E-10
Q411	E-10
Q412	F-10
Q413	F-10
Q414	E-10
Q415	F-10
Q416	F-10
Q417	E-10
Q418	G-10
Q419	G-10
Q420	E-10
Q421	H-2
Q422	H-3
Q423	H-3
Q424	H-3
Q425	H-4
Q426	H-5
Q427	H-5
Q428	G-4
Q429	G-2
Q501	F-8
Q502	G-7
Q503	G-7
Q504	G-7
Q505	G-7
Q506	F-7
Q507	F-7
Q508	F-7
Q509	F-7
Q510	F-7
RB401	H-12
RY-S1	C-12
RY-S2	C-10
RY-S5	C-10
RY-T1	C-6
RY-T2	C-4
RY-T5	C-3
TP101	B-1
TP102	B-1
TP103	B-1
TP104	B-2
TP105	C-3
TP106	A-3
TP107	A-5
TP108	A-7
TP111	C-3
TP112	B-5
TP113	B-7
TP114	C-5
TP115	C-7
TP201	B-8
TP202	B-8
TP203	B-8
TP204	B-8
TP205	C-10
TP206	A-10
TP207	A-11
TP208	A-12
TP211	C-10
TP212	B-11
TP213	B-12
TP214	C-11
TP215	C-12
TP301	D-6
TP302	D-5
TP303	D-2
TP304	D-5
TP305	D-4
TP306	D-12
TP307	D-11
TP309	D-10
TP310	D-10
TP401	G-9
TP402	G-9
TP403	H-10
TP404	H-10
TP405	H-10
TP406	H-10
TP407	G-9
TP408	G-10
TPE101	I-1
TPE106	H-11
TPE108	A-2
TPE111	C-2
TPE112	A-5
TPE113	C-7
TPE202	A-9
TPE205	C-9
TPE206	A-10
TPE207	B-12
TPE301	D-3
TPE302	D-7
TPE303	D-10
TPE304	D-12
TPE401	I-5
TPE403	G-5
TPE404	F-8
TPE405	G-10
TPE406	H-10
TPE408	E-1
TPE409	E-5
TPE501	F-6

RLD-1 BOARD (1-627-098-13) S/N; 10301 TO 10600

Component Side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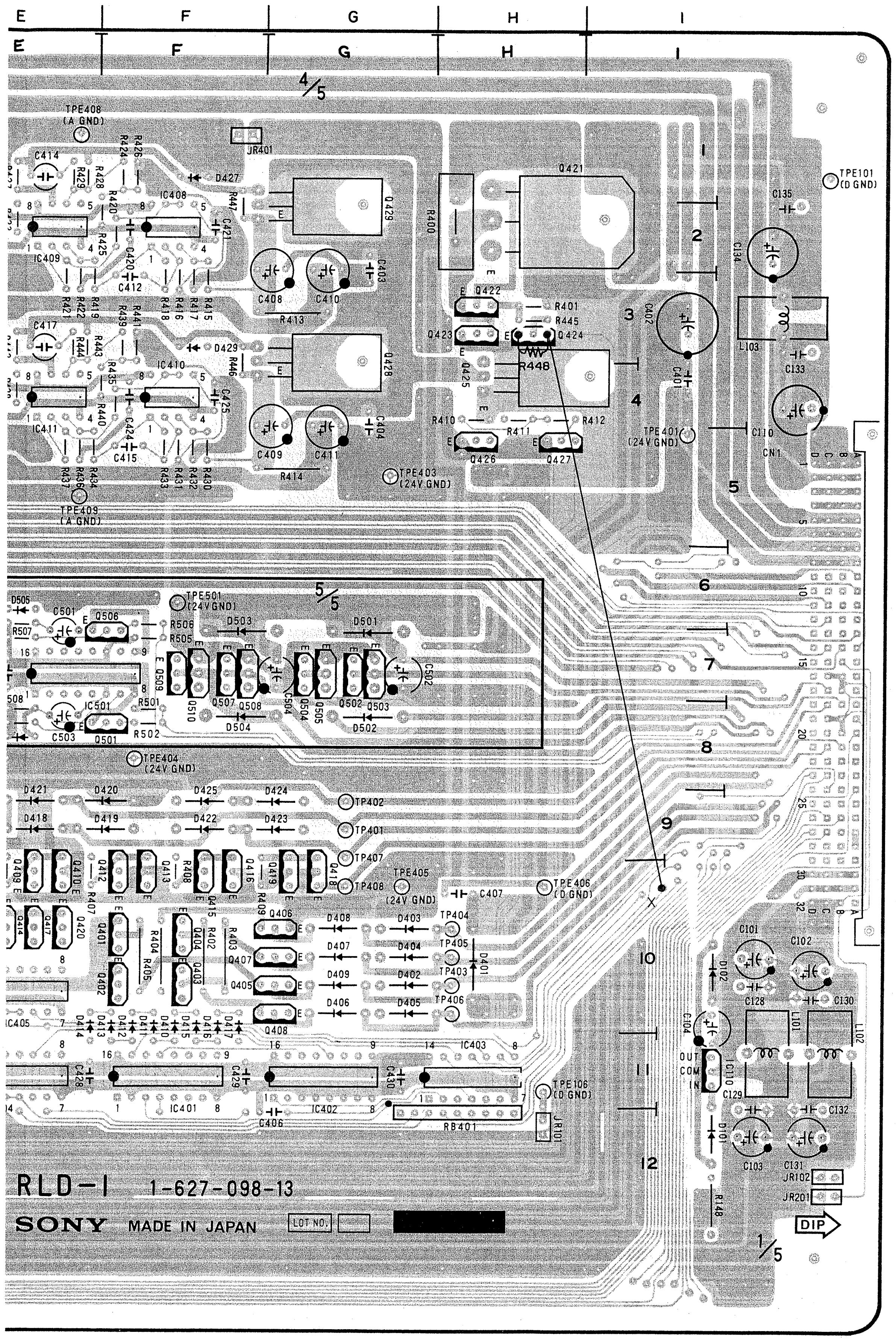
1/5
2/5
3/5
4/5
5/5
RLD-I 1-627-098-13
SONY MADE IN JAPAN
LOT NO.
DIP
TPE101 (D GND)
TPE401 (24V GND)
TPE403 (24V GND)
TPE404 (24V GND)
TPE405 (24V GND)
TPE406 (D GND)
TPE408 (A GND)
TPE409 (A GND)
TPE501 (24V GND)
TPE108 (D GND)
TPE112 (A GND)
TPE113 (A GND)
TPE202 (D GND)
TPE206 (A GND)
TPE207 (A GND)
TPE302 (A GND)
TPE304 (A GND)
CN1
RB401
Q421
R448
OUT
COM
IN

■ SOLDER SIDE PATTERN

Applied Serial No. 10301 to 10600	
Jumpers that have been soldered or cut.	RB401-9 ✕ CN1-25A —
Parts marked with ■ that have been installed on the solder side.	■ R448


E
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4/5
5/5
1/5
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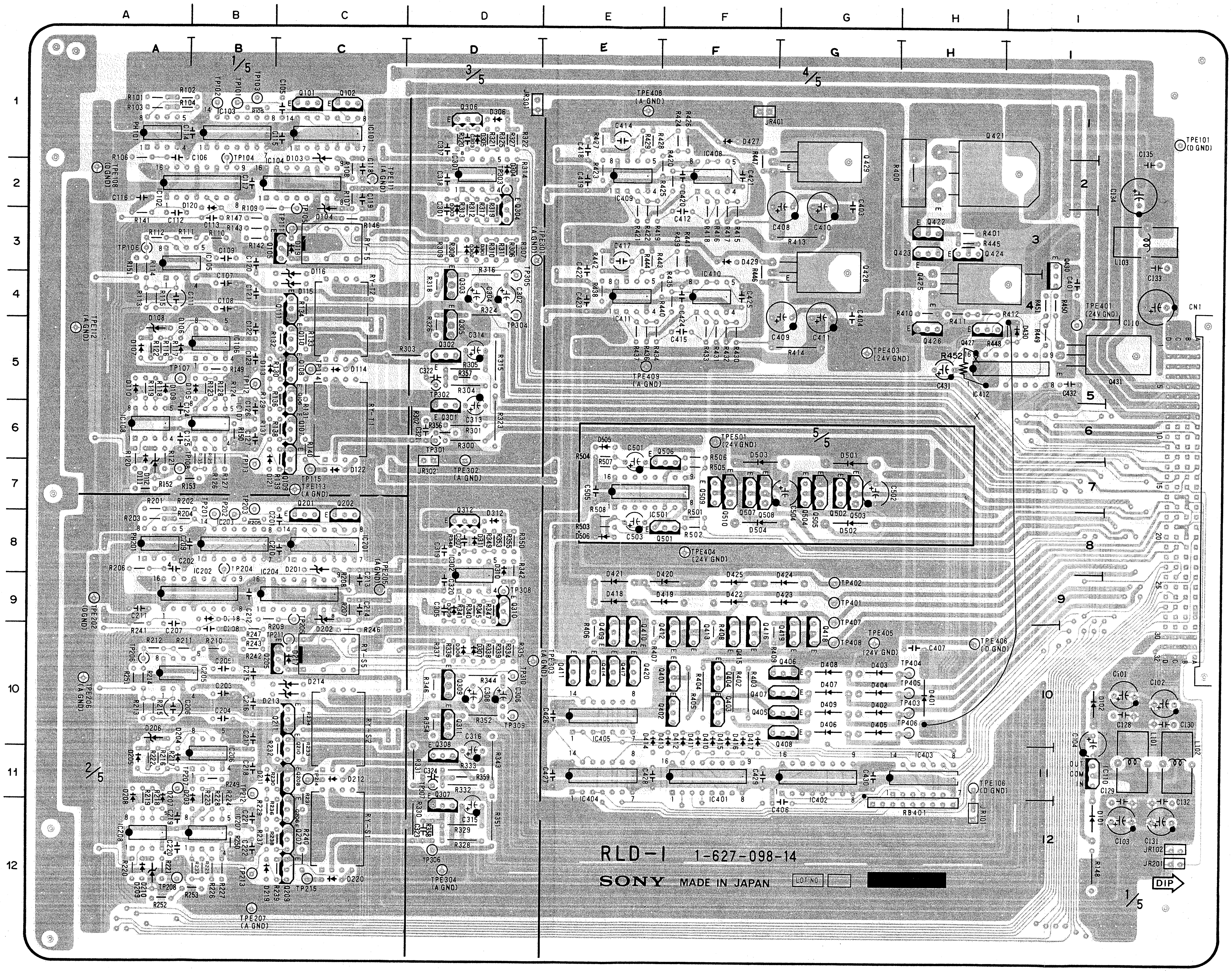
10
11
12
Q421
Q429
Q428
R400
Q422
Q423
Q424
R445
R401
R448
Q425
Q426
Q427
TPE101 (D GND)
TPE401 (24V GND)
TPE403 (24V GND)
TPE408 (A GND)
TPE409 (A GND)
TPE501 (24V GND)
TPE404 (24V GND)
TPE405 (24V GND)
TPE406 (D GND)
TPE106 (D GND)
CN1
IC408
IC409
IC410
IC411
IC501
IC401
IC402
IC403
RB401
L101
L102
L103
OUT
COM
IN
RLD-I 1-627-098-13
SONY MADE IN JAPAN
LOT NO.
DIP

Applied Serial No. 10301 to 10600	
Jumpers that have been soldered or cut.	RB401-9 -✕- CN1-25A CN1-25A — Q424-B
Parts marked with ■ that have been installed on the solder side.	■ R448

CI105	A-3
D101	I-12
D102	I-10
D103	C-2
D104	C-3
D105	B-5
D106	A-5
D107	A-5
D108	A-5
D109	A-5
D110	A-5
D111	A-7
D112	A-7
D113	B-5
D114	C-5
D115	C-4
D116	C-4
D119	C-3
D120	B-3
D121	B-7
D122	C-7
D201	C-8
D202	C-10
D203	B-12
D204	A-11
D205	A-11
D206	A-10
D207	A-12
D208	A-12
D209	A-12
D210	A-12
D211	B-11
D212	C-11
D213	C-10
D214	C-10
D217	C-10
D218	B-9
D219	B-12
D220	C-12
D301	D-3
D302	D-3
D303	D-3
D304	D-2
D305	D-1
D306	D-1
D307	D-10
D308	D-10
D309	D-9
D310	D-9
D311	D-8
D312	D-8
D401	H-10
D402	G-10
D403	G-10
D404	G-10
D405	G-10
D406	G-10
D407	G-10
D408	G-10
D409	G-10
D410	F-10
D411	F-10
D412	F-10
D413	F-10
D414	E-10
D415	F-10
D416	F-10
D417	F-10
D418	E-9
D419	F-9
D420	F-9
D421	E-9
D422	F-9
D423	G-9
D424	G-9
D425	F-9
D427	F-1
D429	F-3
D501	G-7
D502	G-8
D503	F-7
D504	F-8
D505	E-6
D506	E-8
IC101	C-1
IC102	B-2
IC103	B-1
IC104	C-2
IC105	A-3
IC106	B-5
IC107	B-6
IC108	A-6
IC110	I-11
IC201	C-8
IC202	B-9
IC203	B-8
IC204	C-9
IC205	A-10
IC206	B-11
IC207	B-12
IC208	A-12
IC301	D-2
IC302	D-9
IC401	F-11
IC402	G-11
IC403	H-11
IC404	E-11
IC405	E-10
IC408	F-2
IC409	E-2
IC410	F-4
IC411	E-4
IC501	E-7
PH101	A-1
PH201	A-8
Q101	C-1
Q102	C-1
Q105	C-3
Q106	C-6
Q107	C-6
Q108	C-5
Q109	C-7
Q110	C-5
Q111	C-4
Q201	C-8
Q202	C-8
Q205	C-10
Q206	C-12
Q207	C-12
Q208	C-11
Q209	C-12
Q210	C-11
Q211	C-10
Q301	D-6
Q302	D-5
Q303	D-4
Q304	D-3
Q305	D-5
Q306	D-1
Q307	D-12
Q308	D-11
Q309	D-10
Q310	D-9
Q311	D-10
Q312	D-8
Q401	F-10
Q402	F-10
Q403	F-10
Q404	F-10
Q405	G-10
Q406	G-10
Q407	G-10
Q408	G-10
Q409	E-10
Q410	E-10
Q411	E-10
Q412	F-10
Q413	F-10
Q414	E-10
Q415	F-10
Q416	F-10
Q417	E-10
Q418	G-10
Q419	G-10
Q420	E-10
Q421	H-2
Q422	H-3
Q423	H-3
Q424	H-3
Q425	H-4
Q426	H-5
Q427	H-5
Q428	G-4
Q429	G-2
Q501	F-8
Q502	G-7
Q503	G-7
Q504	G-7
Q505	G-7
Q506	F-7
Q507	F-7
Q508	F-7
Q509	F-7
Q510	F-7
RB401	H-12
RY-S1	C-12
RY-S2	C-10
RY-S5	C-10
RY-T1	C-6
RY-T2	C-4
RY-T5	C-3
TP101	B-1
TP102	B-1
TP103	B-1
TP104	B-2
TP105	C-3
TP106	A-3
TP107	A-5
TP108	A-7
TP111	C-3
TP112	B-5
TP113	B-7
TP114	C-5
TP115	C-7
TP201	B-8
TP202	B-8
TP203	B-8
TP204	B-8
TP205	C-10
TP206	A-10
TP207	A-11
TP208	A-12
TP211	C-10
TP212	B-11
TP213	B-12
TP214	C-11
TP215	C-12
TP301	D-6
TP302	D-5
TP303	D-2
TP304	D-5
TP305	D-4
TP306	D-12
TP307	D-11
TP308	D-9
TP309	D-10
TP310	D-10
TP401	G-9
TP402	G-9
TP403	H-10
TP404	H-10
TP405	H-10
TP406	H-10
TP407	G-9
TP408	G-10
TPE101	I-1
TPE106	H-11
TPE108	A-2
TPE111	C-2
TPE112	A-5
TPE113	C-7
TPE202	A-9
TPE205	C-9
TPE206	A-10
TPE207	B-12
TPE301	D-3
TPE302	D-7
TPE303	D-10
TPE304	D-12
TPE401	I-5
TPE403	G-5
TPE404	F-8
TPE405	G-10
TPE406	H-10
TPE408	E-1
TPE409	E-5
TPE501	F-6

RLD-1 BOARD (1-627-098-14) S/N; 10601 AND HIGHER

Component Side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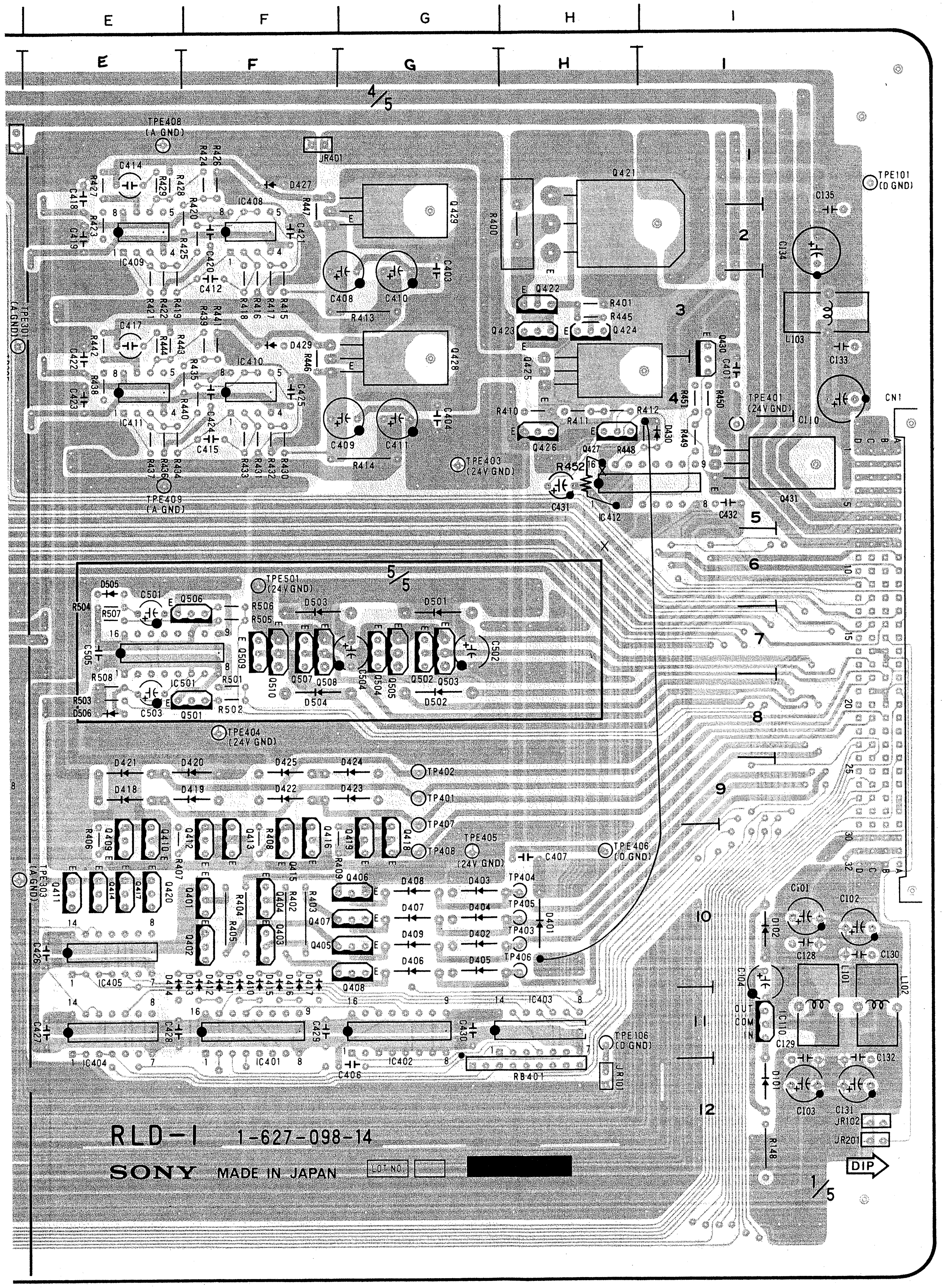
1/5
2/5
3/5
4/5
5/5
RLD-1 1-627-098-14
SONY MADE IN JAPAN
LOT NO.
DIP
CN1
TPE101 (D GND)
TPE401 (24V GND)
TPE501 (24V GND)
TPE404 (24V GND)
TPE207 (A GND)
TPE304 (A GND)

▩ SOLDER SIDE PATTERN

Applied Serial No. 10601 and higher	
Jumpers that have been soldered or cut.	IC412-2 —✕— IC412-2 —✕— R412 —— D4
Parts that have been added.	■ R452

CARD RACK RLD-1 BOARD


E
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11
12
TPE408 (A GND)
TPE409 (A GND)
TPE101 (D GND)
TPE401 (24V GND)
TPE403 (24V GND)
TPE501 (24V GND)
TPE404 (24V GND)
TPE405 (24V GND)
TPE406 (D GND)
TPE106 (D GND)
TPE303 (A GND)
Q421
Q429
Q428
Q431
IC408
IC409
IC410
IC411
IC412
IC501
IC405
IC401
IC402
IC403
IC404
R452
RB401
CN1
DIP
RLD-1 1-627-098-14
SONY MADE IN JAPAN
LOT NO.

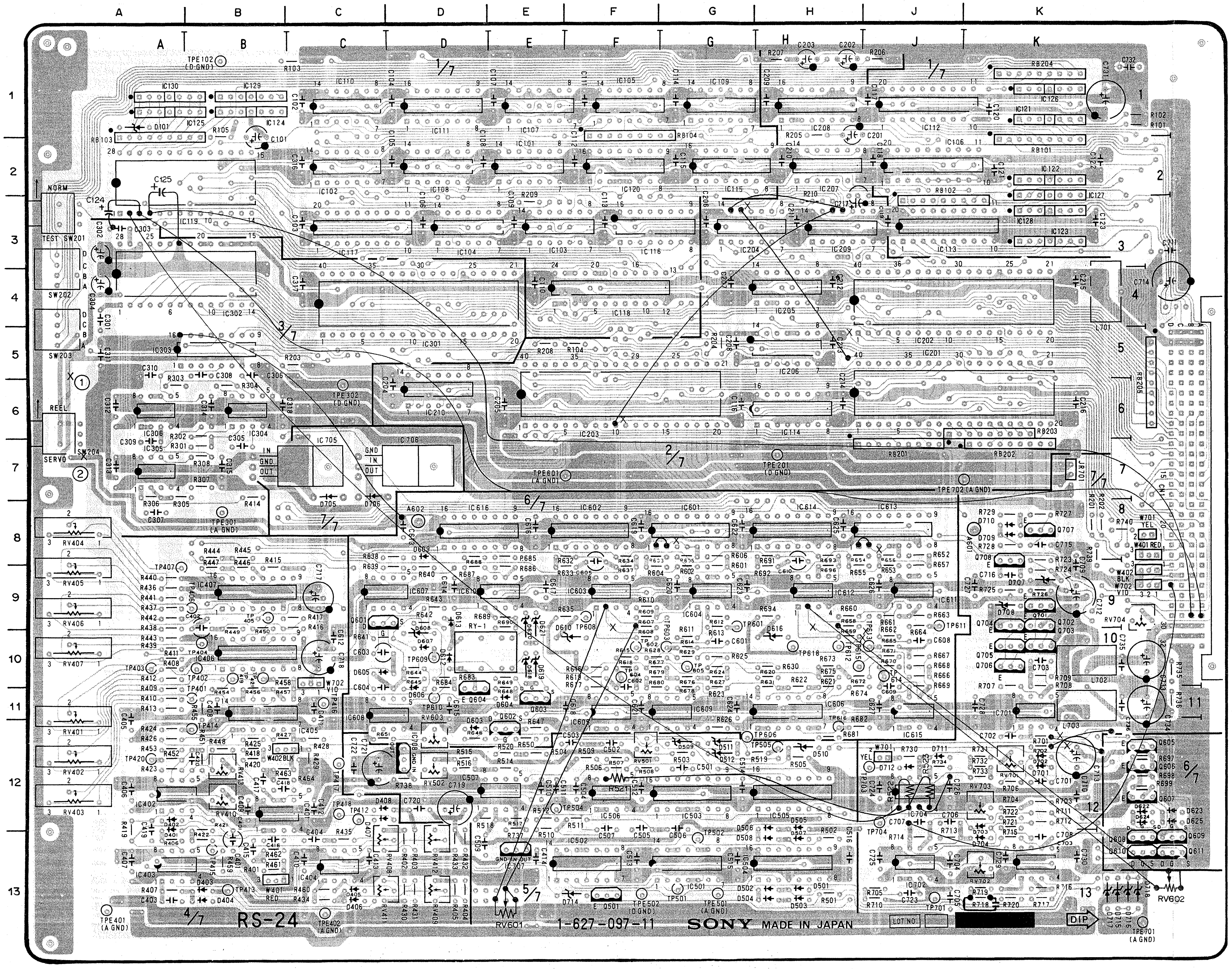
CN1	I-4
D101	I-12
D102	I-10
D103	C-2
D104	C-3
D105	B-5
D106	A-5
D107	A-5
D108	A-5
D109	A-5
D110	A-5
D111	A-7
D112	A-7
D113	B-5
D114	C-5
D115	C-4
D116	C-4
D119	C-3
D120	B-3
D121	B-7
D122	C-7
D201	C-8
D202	C-10
D203	B-12
D204	A-11
D205	A-11
D206	A-10
D207	A-12
D208	A-12
D209	A-12
D210	A-12
D211	B-11
D212	C-11
D213	C-10
D214	C-10
D217	C-10
D218	B-9
D219	B-12
D220	C-12
D301	D-3
D302	D-3
D303	D-3
D304	D-2
D305	D-1
D306	D-1
D307	D-10
D308	D-10
D309	D-9
D310	D-9
D311	D-8
D312	D-8
D401	H-10
D402	G-10
D403	G-10
D404	G-10
D405	G-10
D406	G-10
D407	G-10
D408	G-10
D409	G-10
D410	F-10
D411	F-10
D412	F-10
D413	F-10
D414	E-10
D415	F-10
D416	F-10
D417	F-10
D418	E-9
D419	F-9
D420	F-9
D421	E-9
D422	F-9
D423	G-9
D424	G-9
D425	F-9
D427	F-1
D429	F-3
D501	G-7
D502	G-8
D503	F-7
D504	F-8
D505	E-6
D506	E-8
IC101	C-1
IC102	B-2
IC103	B-1
IC104	C-2
IC105	A-3
IC106	B-5
IC107	B-6
IC108	A-6
IC110	I-11
IC201	C-8
IC202	B-9
IC203	B-8
IC204	C-9
IC205	A-10
IC206	B-11
IC207	B-12
IC208	A-12
IC301	D-2
IC302	D-9
IC401	F-11
IC402	G-11
IC403	H-11
IC404	E-11
IC405	E-10
IC	F-2
IC409	E-2
IC410	F-4
IC411	E-4
IC412	H-5
IC501	E-7
PH101	A-1
PH201	A-8
Q101	C-1
Q102	C-1
Q105	C-3
Q106	C-6
Q107	C-6
Q108	C-5
Q109	C-7
Q110	C-5
Q111	C-4
Q201	C-8
Q202	C-8
Q205	C-10
Q206	C-12
Q207	C-12
Q208	C-11
Q209	C-12
Q210	C-11
Q211	C-10
Q301	D-6
Q302	D-5
Q303	D-4
Q304	D-3
Q305	D-5
Q306	D-1
Q307	D-12
Q308	D-11
Q309	D-10
Q310	D-9
Q311	D-10
Q312	D-8
Q401	F-10
Q402	F-10
Q403	F-10
Q404	F-10
Q405	G-10
Q406	G-10
Q407	G-10
Q408	G-10
Q409	E-10
Q410	E-10
Q411	E-10
Q412	F-10
Q413	F-10
Q414	E-10
Q415	F-10
Q416	F-10
Q417	E-10
Q418	G-10
Q419	G-10
Q420	E-10
Q421	H-2
Q422	H-3
Q423	H-3
Q424	H-3
Q425	H-4
Q426	H-5
Q427	H-5
Q428	G-4
Q429	G-2
Q430	I-3
Q431	I-5
Q501	F-8
Q502	G-7
Q503	G-7
Q504	G-7
Q505	G-7
Q506	F-7
Q507	F-7
Q508	F-7
Q509	F-7
Q510	F-7
RB401	H-12
RY-S1	C-12
RY-S2	C-10
RY-S5	C-10
RY-T1	C-6
RY-T2	C-4
RY-T5	C-3
TP101	B-1
TP102	B-1
TP103	B-1
TP104	B-2
TP105	C-3
TP106	A-3
TP107	A-5
TP108	A-7
TP111	C-3
TP112	B-5
TP113	B-7
TP114	C-5
TP115	C-7
TP201	B-8
TP202	B-8
TP203	B-8
TP204	B-8
TP205	C-10
TP206	A-10
TP207	A-11
TP208	A-12
TP211	C-10
TP212	B-11
TP213	B-12
TP214	C-11
TP215	C-12
TP301	D-6
TP302	D-5
TP303	D-2
TP304	D-5
TP305	D-4
TP306	D-12
TP307	D-11
TP308	D-9
TP309	D-10
TP310	D-10
TP401	G-9
TP402	G-9
TP403	H-10
TP404	H-10
TP405	H-10
TP406	H-10
TP407	G-9
TP408	G-10
TPE101	I-1
TPE106	H-11
TPE108	A-2
TPE111	C-2
TPE112	A-5
TPE113	C-7
TPE202	A-9
TPE205	C-9
TPE206	A-10
TPE207	B-12
TPE301	D-3
TPE302	D-7
TPE303	D-10
TPE304	D-12
TPE401	I-5
TPE403	G-5
TPE404	F-8
TPE405	G-10
TPE406	H-10
TPE408	E-1
TPE409	E-5
TPE501	F-6

Applied Serial No. 10601 and higher	
Jumpers that have been soldered or cut.	IC412-2 —×— IC412-16 IC412-2 —×— D401 R412 —— D401
Parts that have been added.	■ R452

RS-24 BOARD (1-627-097-11)

Component Side

S/N; 10001 TO 10100


A
B
C
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G
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K
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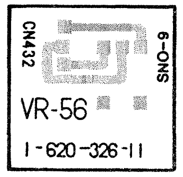
12
13
1/7
2/7
3/7
4/7
5/7
6/7
7/7
NORM
TEST SW201
SW202
SW203
REEL
SERVO
SW204
RV404
RV405
RV406
RV407
RV401
RV402
RV403
RV601
RV602
TPE102 (D GND)
TPE302 (D GND)
TPE301 (A GND)
TPE601 (A GND)
TPE201 (D GND)
TPE702 (A GND)
TPE401 (A GND)
TPE402 (A GND)
TPE502 (D GND)
TPE501 (A GND)
TPE701 (A GND)
IC705
IC706
RS-24
1-627-097-11
SONY MADE IN JAPAN
LOT NO.
DIP

■ SOLDER SIDE PATTERN

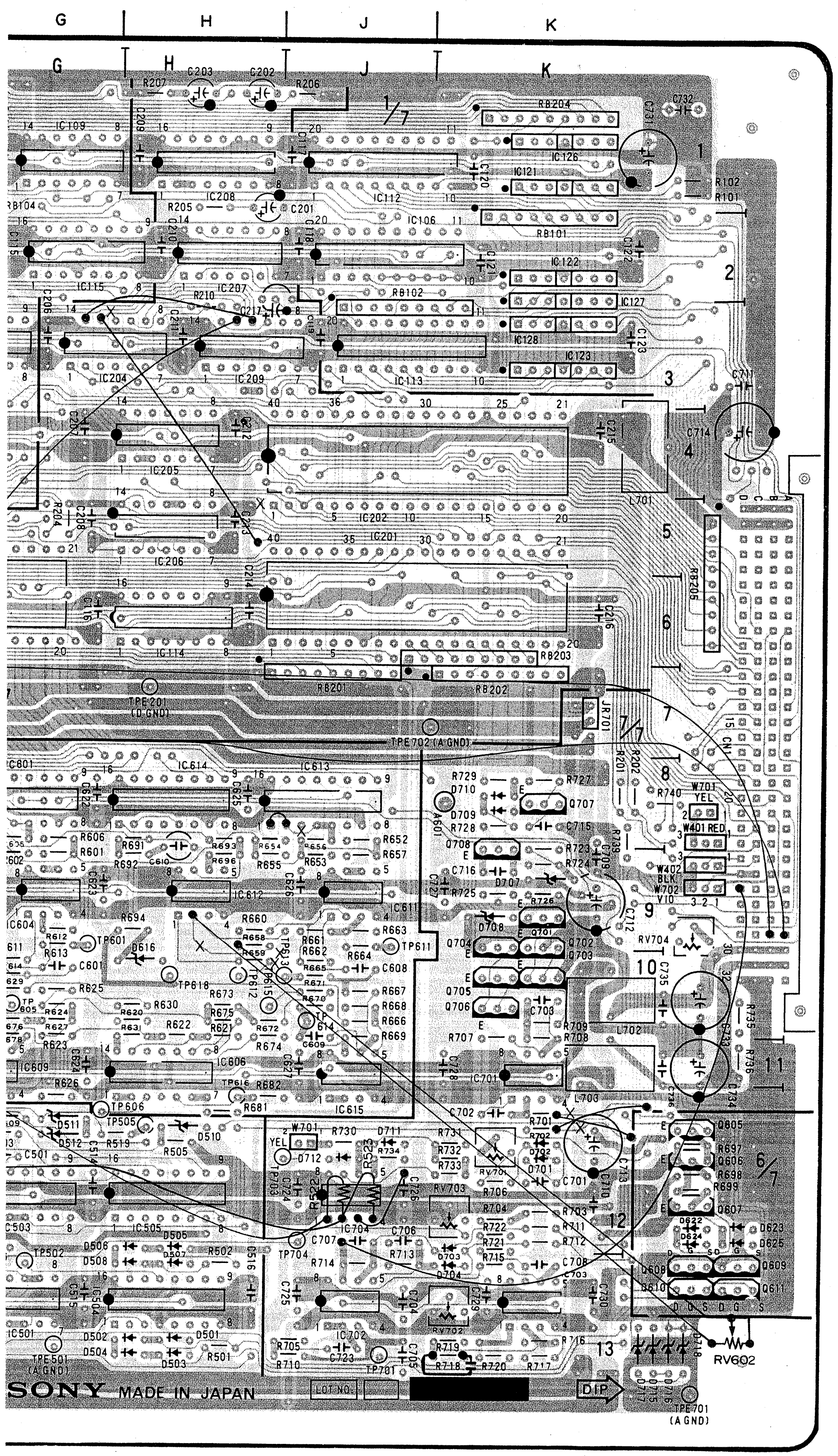
VR-56 BOARD (1-620-326-11)

Component Side


CN432
6-ONS
VR-56
1-620-326-11

■ SOLDER SIDE PATTERN

Applied Serial No. Up to 10100	
Jumpers that have been soldered or cut.	IC204-12 —×— IC209-12 IC204-12 —×— Q605-B IC204-13 —×— IC203-10 IC601-2 —×— IC601-4 IC603-2 —×— R607 IC612-2 —×— R658 IC613-2 —×— IC613-4 R701 —×— CN1-21B R702 —×— CN1-21A ① (See the board) ② (See the board) IC119-2 — IC704-1 IC119-3 — CN1-29A IC119-4 — CN1-29B IC203-10 — IC209-12 IC204-13 — IC209-11 IC209-11 — Q605-B IC601-1 — IC601-2 IC613-1 — IC613-2 IC702-7 — CN1-26D R701 — CN1-21A R702 — CN1-21B C613 — IC303-16
Parts marked with ■ that have been installed on the solder side.	■ C124 ■ RV601 ■ C125 ■ RV602 ■ C737 ■ R521 ■ R522 ■ R523


G
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J
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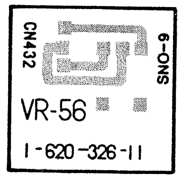
IC109
IC115
IC204
IC205
IC206
IC114
IC208
IC207
IC209
IC112
IC106
IC113
IC121
IC122
IC126
IC127
IC128
IC123
IC201
IC202
RB204
RB101
RB102
RB201
RB202
RB203
RB205
TPE201 (D GND)
TPE702 (A GND)
IC601
IC614
IC613
IC612
IC611
IC606
IC615
IC701
IC702
IC704
IC505
IC501
L701
L702
L703
RV602
TPE501 (A GND)
TPE701 (A GND)
SONY MADE IN JAPAN
LOT NO.
DIP

VR-56 BOARD (1-620-326-11)
Component Side

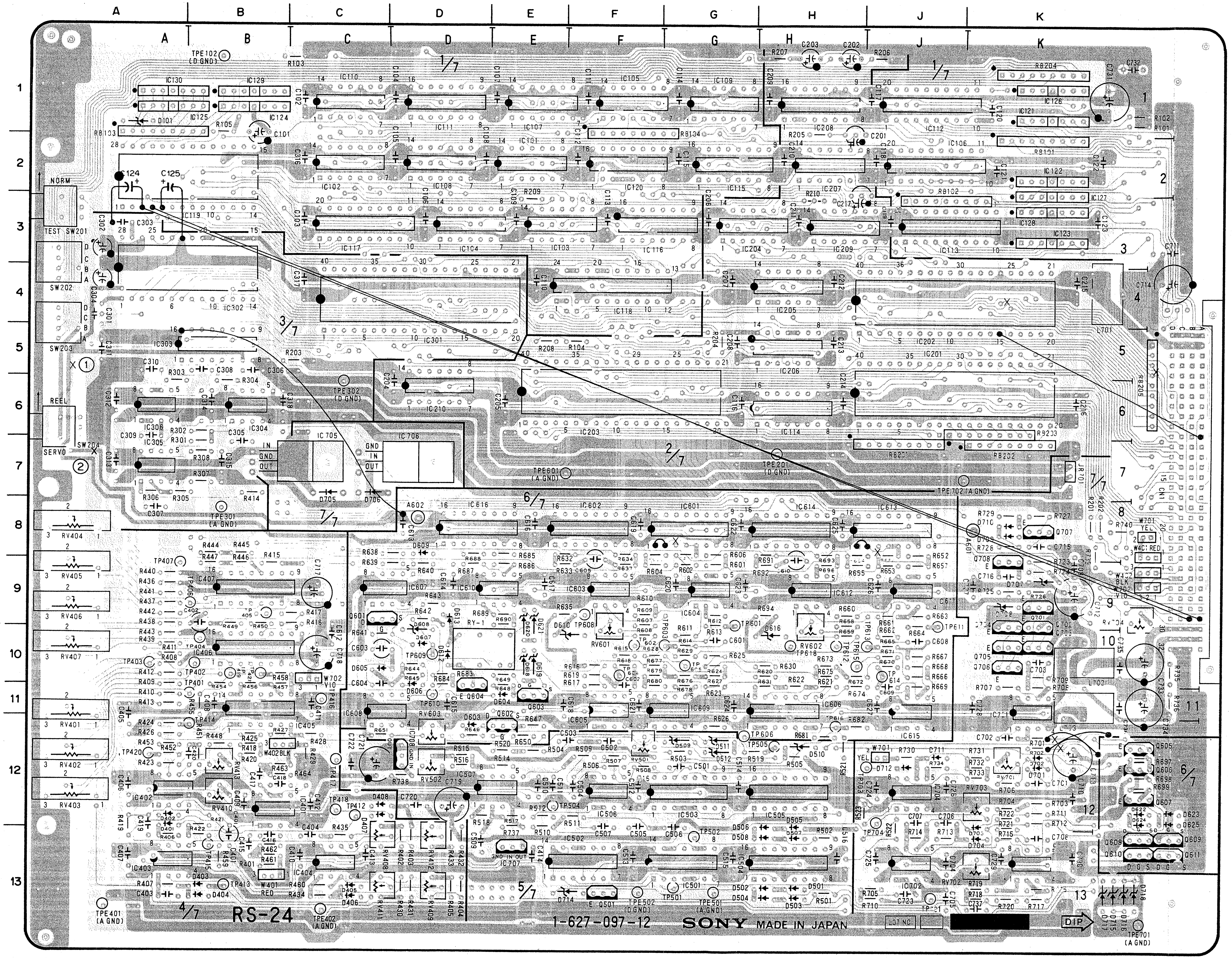

CN432
SNO-6
VR-56
1-620-326-11

■ SOLDER SIDE PATTERN

Applied Serial No. Up to 10100	
Jumpers that have been soldered or cut.	IC204-12 →×← IC209-12 IC204-12 →×← Q605-B IC204-13 →×← IC203-10 IC601-2 →×← IC601-4 IC603-2 →×← R607 IC612-2 →×← R658 IC613-2 →×← IC613-4 R701 →×← CN1-21B R702 →×← CN1-21A ① (See the board) ② (See the board) IC119-2 — IC704-1 IC119-3 — CN1-29A IC119-4 — CN1-29B IC203-10 — IC209-12 IC204-13 — IC209-11 IC209-11 — Q605-B IC601-1 — IC601-2 IC613-1 — IC613-2 IC702-7 — CN1-26D R701 — CN1-21A R702 — CN1-21B C613 — IC303-16
Parts marked with ■ that have been installed on the solder side.	■ C124 ■ RV601 ■ C125 ■ RV602 ■ C737 ■ R521 ■ R522 ■ R523

CN1	K-7
D101	A-1
D401	A-12
D402	A-12
D403	B-13
D404	B-13
D405	C-13
D406	C-13
D407	C-12
D408	C-12
D501	H-13
D502	H-13
D503	H-13
D504	H-13
D505	H-12
D506	H-12
D507	H-13
D508	H-13
D509	G-12
D510	H-12
D511	G-12
D512	G-12
D603	D-11
D604	E-11
D606	D-10
D607	D-10
D608	D-10
D609	D-8
D610	F-10
D612	D-10
D613	D-9
D616	H-10
D618	E-10
D619	E-10
D620	E-9
D621	E-9
D622	K-12
D623	K-12
D624	K-12
D701	K-12
D702	K-12
D703	K-12
D704	K-13
D705	C-7
D706	C-7
D707	K-9
D708	K-9
D709	K-8
D710	K-8
D711	J-12
D712	J-12
D714	F-13
D715	K-13
D716	K-13
D717	K-13
D718	K-13
IC101	E-2
IC102	C-2
IC103	E-3
IC104	D-3
IC105	F-1
IC106	J-2
IC107	E-1
IC108	D-2
IC109	G-1
IC110	C-1
IC111	D-1
IC112	J-1
IC113	J-3
IC114	H-6
IC115	G-2
IC116	F-3
IC117	C-3
IC118	F-4
IC119	B-2
IC120	F-2
IC121	K-1
IC122	K-2
IC123	K-3
IC124	B-1
IC125	A-1
IC126	K-1
IC127	K-3
IC128	K-3
IC129	B-1
IC130	A-1
IC201	J-6
IC202	J-4
IC203	F-6
IC204	G-3
IC205	H-4
IC206	H-5
IC207	H-2
IC208	H-1
IC209	H-3
IC210	D-6
IC301	D-4
IC302	B-4
IC303	B-5
IC304	B-6
IC305	A-7
IC306	A-6
IC401	B-12
IC402	A-12
IC403	A-13
IC404	C-13
IC405	B-11
IC406	B-10
IC407	B-9
IC501	F-12
IC501	G-13
IC502	F-13
IC503	G-12
IC504	H-13
IC505	H-12
IC506	F-12
IC507	E-12
IC601	G-8
IC602	F-8
IC603	F-9
IC604	G-9
IC605	F-11
IC606	G-1
IC606	H-11
IC607	C-9
IC608	C-11
IC609	G-11
IC610	E-9
IC611	J-9
IC613	J-8
IC614	H-8
IC615	J-11
IC616	D-8
IC701	K-11
IC702	J-13
IC703	K-13
IC704	J-12
IC705	C-7
IC706	D-7
IC707	E-13
IC708	D-11
Q501	F-13
Q601	C-9
Q602	E-12
Q603	E-11
Q604	D-10
Q605	K-12
Q606	K-12
Q607	K-12
Q608	K-13
Q609	K-13
Q610	K-13
Q611	K-13
Q701	K-9
Q702	K-9
Q703	K-10
Q704	K-9
Q705	K-10
Q706	K10
Q707	K-8
Q708	K-8
RB101	K-2
RB102	J-3
RB103	A-1
RB104	F-1
RB201	J-7
RB202	K-7
RB203	K-6
RB204	K-1
RB205	K-5
RV401	A-11
RV402	A-12
RV403	A-12
RV404	A-8
RV405	A-9
RV406	A-9
RV407	A-10
RV408	C-13
RV409	D-13
RV410	B-12
RV411	C-13
RV412	D-13
RV413	B-12
RV502	D-11
RV603	D-11
RV701	K-12
RV702	K-13
RV703	K-12
RV704	K-9
RY1	D-10
SW201	A-3
SW202	A-4
SW203	A-5
SW204	A-6
TI612	H-10
TP401	B-11
TP402	B-10
TP403	A-10
TP404	B-10
TP405	B-9
TP406	B-9
TP407	A-9
TP412	C-12
TP413	B-13
TP414	B-12
TP415	B-13
TP416	C-11
TP417	C-12
TP418	C-12
TP419	B-10
TP420	A-12
TP421	B-10
TP501	G-13
TP502	G-13
TP504	E-12
TP505	H-12
TP601	G-9
TP602	F-10
TP603	G-10
TP604	F-10
TP605	G-10
TP606	G-12
TP608	F-9
TP610	D-11
TP611	J-9
TP612	H-9
TP613	J-10
TP614	J-10
TP615	H-10
TP618	H-10
TP701	J-13
TP703	J-12
TP704	J-12
TPE102	B-1
TPE201	H-7
TPE301	B-8
TPE302	C-6
TPE401	A-13
TPE402	C-13
TPE501	G-13
TPE502	F-13
TPE601	E-7
TPE702	J-7

RS-24 BOARD (1-627-097-12) S/N; 10101 TO 10300
Component Side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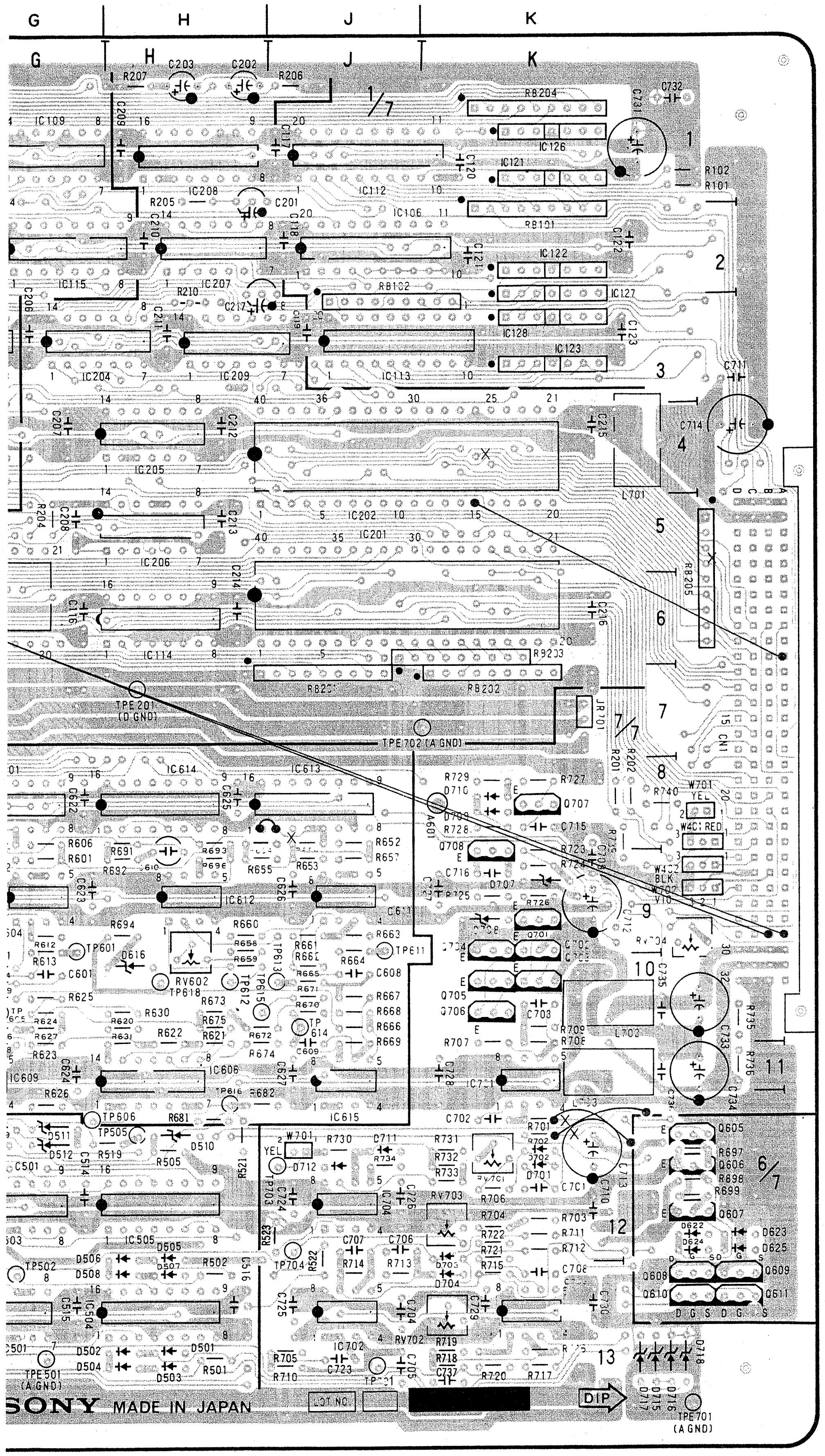
12
13
NORM
TEST SW201
SW202
SW203
REEL
SERVO SW204
RV404
RV405
RV406
RV407
RV401
RV402
RV403
TPE102 (D GND)
TPE302 (D GND)
TPE301 (A GND)
TPE601 (A GND)
TPE201 (D GND)
TPE702 (A GND)
TPE401 (A GND)
TPE402 (A GND)
TPE502 (D GND)
TPE501 (A GND)
TPE701 (A GND)
IC705
IC706
GND IN OUT
RY-1
RS-24
1-627-097-12
SONY MADE IN JAPAN
LOT NO.
DIP
1/7
2/7
3/7
4/7
5/7
6/7
7/7

■ SOLDER SIDE PATTERN

Applied Serial No. 10101 to 10300	
Jumpers that have been soldered or cut.	R701 -×- CN1-21B R702 -×- CN1-21A IC202-15 -×- RB205-3 IC601-2 -×- IC601-4 IC613-2 -×- IC613-4 RB205-3 -×- CN1-11A ① (See the board) ② (See the board) IC119-3 — CN1-29A IC119-4 — CN1-29B IC202-15 — CN1-11A IC601-1 — IC601-2 IC613-1 — IC613-2 R701 — CN1-21A R702 — CN1-21B C613 — IC303-16
Parts marked with ■ that have been installed on the solder side.	■ C124 ■ C125

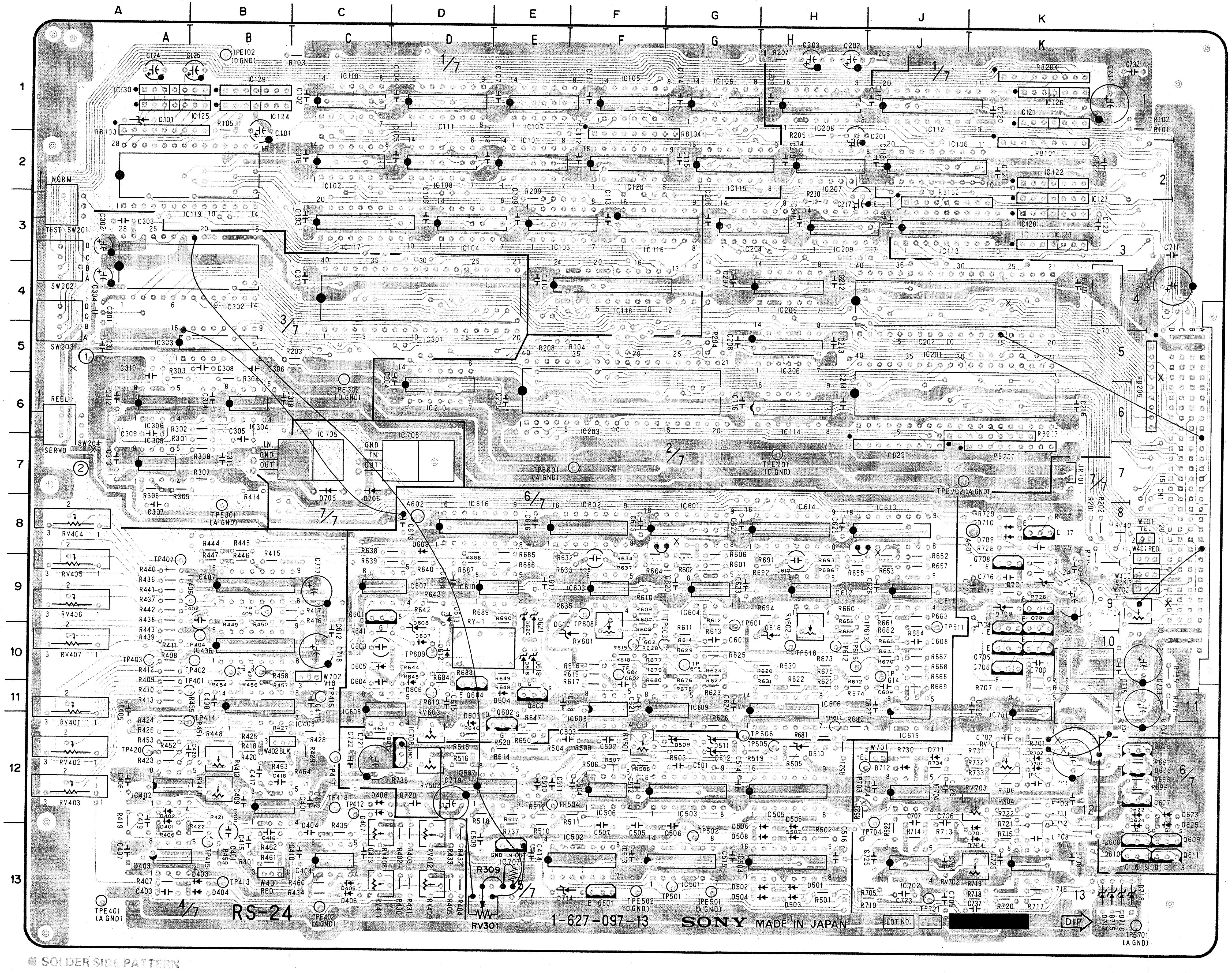
CARD RACK　RS-24 BOARD



Applied Serial No. 10101 to 10300	
Jumpers that have been soldered or cut.	R701 →×← CN1-21B R702 →×← CN1-21A IC202-15 →×← RB205-3 IC601-2 →×← IC601-4 IC613-2 →×← IC613-4 RB205-3 →×← CN1-11A ① (See the board) ② (See the board) IC119-3 — CN1-29A IC119-4 — CN1-29B IC202-15 — CN1-11A IC601-1 — IC601-2 IC613-1 — IC613-2 R701 — CN1-21A R702 — CN1-21B C613 — IC303-16
Parts marked with ■ that have been installed on the solder side.	■ C124 ■ C125

CN1	K-7
D101	A-1
D401	A-12
D402	A-12
D403	B-13
D404	B-13
D405	C-13
D406	C-13
D407	C-12
D408	C-12
D501	H-13
D502	H-13
D503	H-13
D504	H-13
D505	H-12
D506	H-12
D507	H-13
D508	H-13
D509	G-12
D510	H-12
D511	G-12
D512	G-12
D603	D-11
D604	E-11
D605	C-10
D606	D-11
D607	D-10
D608	D-10
D609	D-8
D610	F-10
D612	D-10
D613	D-9
D616	H-10
D618	E-10
D619	E-10
D620	E-9
D621	E-9
D622	K-12
D623	K-12
D624	K-12
D625	K-12
D701	K-12
D702	K-12
D703	K-12
D704	K-13
D705	C-7
D706	C-7
D707	K-9
D708	K-9
D709	K-8
D710	K-8
D711	J-12
D712	J-12
D714	F-13
D715	K-13
D716	K-13
D717	K-13
D718	K-13
IC101	E-2
IC102	C-2
IC103	E-3
IC104	D-3
IC105	F-1
IC106	J-2
IC107	E-1
IC108	D-2
IC109	G-1
IC110	C-1
IC111	D-1
IC112	J-1
IC113	J-3
IC114	H-6
IC115	G-2
IC116	F-3
IC117	C-3
IC118	F-4
IC119	B-2
IC120	F-2
IC121	K-1
IC122	K-2
IC123	K-3
IC124	B-1
IC125	A-1
IC126	K-1
IC127	K-3
IC128	K-3
IC129	B-1
IC130	A-1
IC201	J-6
IC202	J-4
IC203	F-6
IC204	G-3
IC205	H-4
IC206	H-5
IC207	H-2
IC208	H-1
IC209	H-3
IC210	D-6
IC301	D-4
IC302	B-4
IC303	B-5
IC304	B-6
IC305	A-7
IC306	A-6
IC401	B-12
IC402	A-12
IC403	A-13
IC404	C-13
IC405	B-11
IC406	B-10
IC407	B-9
IC501	G-13
IC502	F-13
IC503	G-12
IC504	H-13
IC505	H-12
IC506	F-12
IC507	E-12
IC601	G-8
IC602	F-8
IC603	F-9
IC604	G-9
IC605	F-11
IC606	H-11
IC607	C-9
IC608	C-11
IC609	G-11
IC610	E-9
IC611	J-9
IC612	H-9
IC613	J-8
IC614	H-8
IC615	J-11
IC616	D-8
IC701	K-11
IC702	J-13
IC703	K-13
IC704	J-12
IC705	C-7
IC706	D-7
IC707	E-13
IC708	D-11
Q501	F-13
Q601	C-9
Q602	E-12
Q603	E-11
Q604	D-10
Q605	K-12
Q606	K-12
Q607	K-12
Q608	K-13
Q609	K-13
Q610	K-13
Q611	K-13
Q701	K-9
Q702	K-9
Q703	K-10
Q704	K-9
Q705	K-10
Q706	K10
Q707	K-8
Q708	K-8
RB101	K-2
RB102	J-3
RB103	A-1
RB104	F-1
RB201	J-7
RB202	K-7
RB203	K-6
RB204	K-1
RB205	K-6
RV401	A-11
RV402	A-12
RV403	A-12
RV404	A-8
RV405	A-9
RV406	A-9
RV407	A-10
RV408	C-13
RV409	D-13
RV410	B-12
RV411	C-13
RV412	D-13
RV413	B-12
RV501	F-12
RV502	D-12
RV601	F-10
RV602	H-9
RV603	D-12
RV701	K-12
RV702	K-13
RV703	K-12
RV704	K-9
RY1	D-10
SW201	A-3
SW202	A-4
SW203	A-5
SW204	A-6
TP401	B-11
TP402	B-10
TP403	A-10
TP404	B-10
TP405	B-9
TP406	B-9
TP407	A-9
TP412	C-12
TP413	B-13
TP414	B-12
TP415	B-13
TP416	C-11
TP417	C-12
TP418	C-12
TP419	B-10
TP420	A-12
TP421	B-10
TP501	G-13
TP502	G-13
TP504	E-12
TP505	H-12
TP601	G-9
TP602	F-10
TP603	G-10
TP604	F-10
TP605	G-10
TP606	G-12
TP608	F-9
TP609	D-10
TP610	D-11
TP611	J-9
TP612	H-10
TP613	J-10
TP614	J-10
TP615	H-10
TP616	H-12
TP618	H-10
TP701	J-13
TP703	J-12
TP704	J-12
TPE102	B-1
TPE201	H-7
TPE301	B-8
TPE302	C-6
TPE401	A-13
TPE402	C-13
TPE501	G-13
TPE502	F-13
TPE601	E-7
TPE701	K-13
TPE702	J-7

RS-24 BOARD (1-627-097-13) S/N: 10301 TO 11200
Component Side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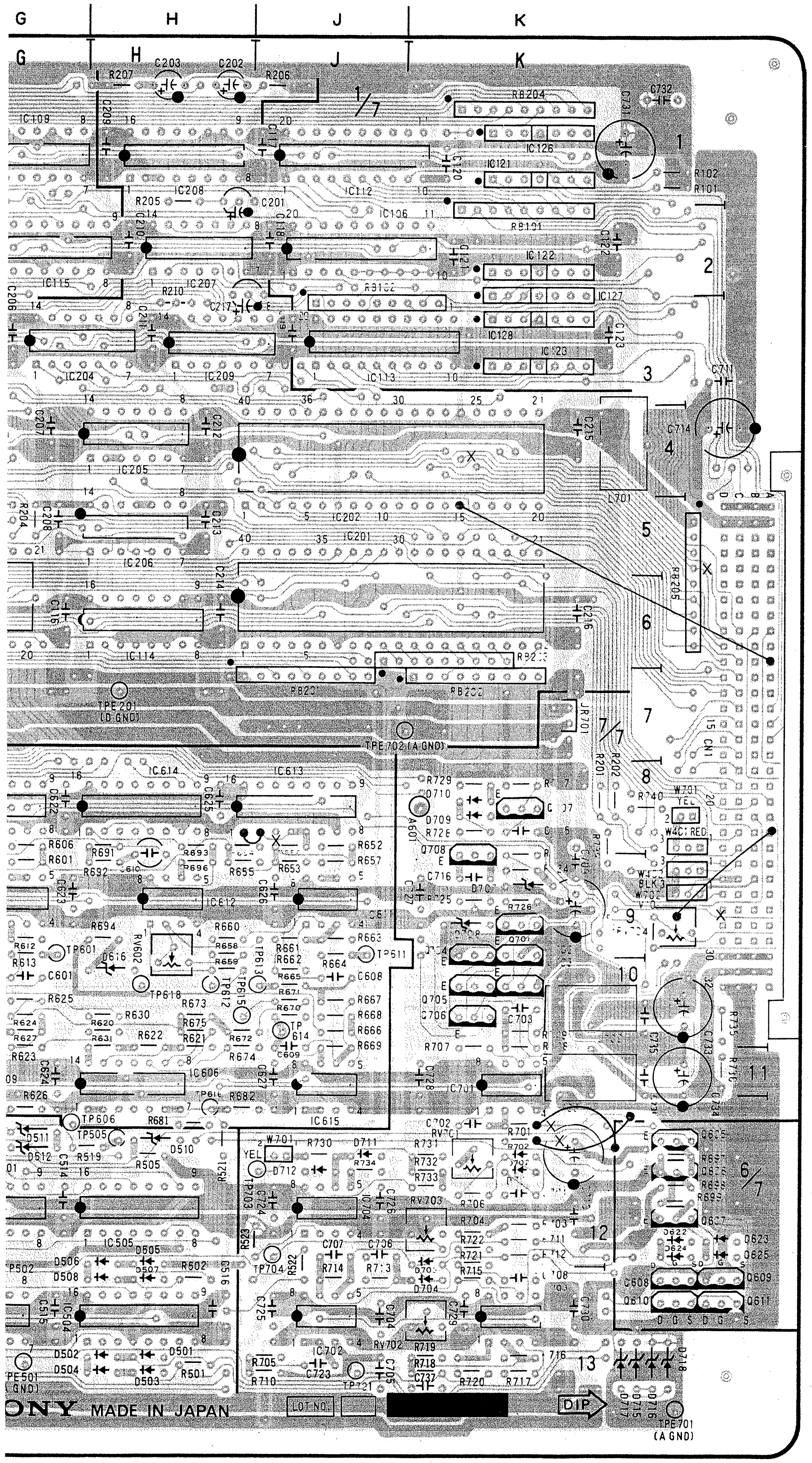
NORM
TEST SW201
SW202
SW203
REEL
SERVO SW204
RV404
RV405
RV406
RV407
RV401
RV402
RV403
TPE102 (D GND)
TPE302 (D GND)
TPE301 (A GND)
TPE601 (A GND)
TPE201 (D GND)
TPE702 (A GND)
TPE401 (A GND)
TPE402 (A GND)
TPE502 (D GND)
TPE501 (A GND)
TPE701 (A GND)
IC705
IC706
IN
GND
OUT
RY-1
RV301
R309
RS-24
1-627-097-13
SONY
MADE IN JAPAN
LOT NO.
DIP
SOLDER SIDE PATTERN

Applied Serial No. 10301 and higher	
Jumpers that have been soldered or cut.	CN1-21A -×- RV704-2 IC601-2 -×- IC601-4 IC613-2 -×- IC613-4 R701 -×- CN1-21B R702 -×- CN1-21A ① (See the board) ② (See the board) CN1-22A — RV704-2 IC601-1 — IC601-2 IC613-1 — IC613-2 R701 — CN1-21A R702 — CN1-21B C613 — IC303-16

Applied Serial No. 10401 to 10600	
Jumpers that have been soldered or cut.	RB205-3 -×- CN1-11A IC202-15 -×- RB205-3 IC202-15 — CN1-11A

Applied Serial No.10502, 10504, 10601 and higher	
Jumpers that have been soldered.	IC302-21 — R309 R309 — RV301-2 RV301-1 — IC708-1 RV301-3 — IC707-3
Parts that have been added.	R309 RV301

CARD RACK RS-24 BOARD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6/7
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IC109
IC112
IC106
IC126
IC121
IC122
IC127
IC128
IC123
IC113
IC115
IC207
IC208
IC209
IC204
IC205
IC202
IC201
IC206
IC114
IC614
IC613
IC612
IC606
IC615
IC505
IC702
RB204
RB101
RB102
RB205
RB201
RB202
CN1
TPE201 (D GND)
TPE702 (A GND)
TPE501 (D GND)
TPE701 (A GND)
TP601
TP618
TP511
TP505
TP606
YEL
BLK
RED
W701
DIP
LOT NO.
SONY MADE IN JAPAN

Applied Serial No. 10301 and higher	
Jumpers that have been soldered or cut.	CN1-21A —×— RV704-2 IC601-2 —×— IC601-4 IC613-2 —×— IC613-4 R701 —×— CN1-21B R702 —×— CN1-21A ① (See the board) ② (See the board) CN1-22A — RV704-2 IC601-1 — IC601-2 IC613-1 — IC613-2 R701 — CN1-21A R702 — CN1-21B C613 — IC303-16

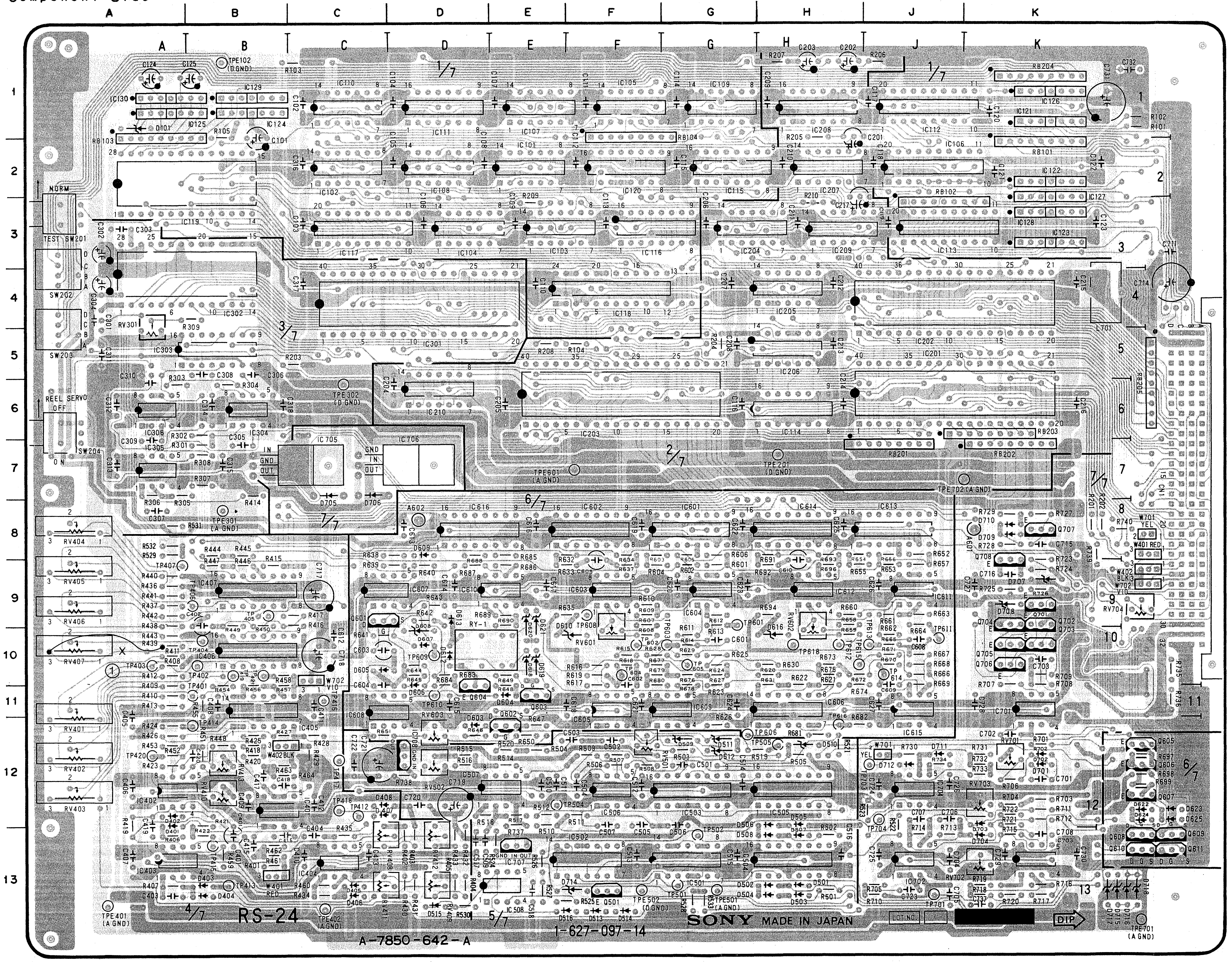
Applied Serial No. 10401 to 10600	
Jumpers that have been soldered or cut.	RB205-3 —×— CN1-11A IC202-15 —×— RB205-3 IC202-15 — CN1-11A

Applied Serial No.10502, 10504, 10601 and higher	
Jumpers that have been soldered.	IC302-21 — R309 R309 — RV301-2 RV301-1 — IC708-1 RV301-3 — IC707-3
Parts that have been added.	R309 RV301

CN1	K-7	IC111	D-1	IC705	C-7	TP405	B-9
		IC112	J-1	IC706	D-7	TP406	B-9
D101	A-1	IC113	J-3	IC707	E-13	TP407	A-9
D401	A-12	IC114	H-6	IC708	D-11	TP412	C-12
D402	A-12	IC115	G-2			TP413	B-13
D403	B-13	IC116	F-3	Q501	F-13	TP414	B-12
D404	B-13	IC117	C-3	Q601	C-9	TP415	B-13
D405	C-13	IC118	F-4	Q602	E-12	TP416	C-11
D406	C-13	IC119	B-2	Q603	E-11	TP417	C-12
D407	C-12	IC120	F-2	Q604	D-10	TP418	C-12
D408	C-12	IC121	K-1	Q605	K-12	TP419	B-10
D501	H-13	IC122	K-2	Q606	K-12	TP420	A-12
D502	H-13	IC123	K-3	Q607	K-12	TP421	B-10
D503	H-13	IC124	B-1	Q608	K-13	TP501	G-13
D504	H-13	IC125	A-1	Q609	K-13	TP502	G-13
D505	H-12	IC126	K-1	Q610	K-13	TP504	E-12
D506	H-12	IC127	K-3	Q611	K-13	TP505	H-12
D507	H-13	IC128	K-3	Q701	K-9	TP601	G-9
D508	H-13	IC129	B-1	Q702	K-9	TP602	F-10
D509	G-12	IC130	A-1	Q703	K-10	TP603	G-10
D510	H-12	IC201	J-6	Q704	K-9	TP604	F-10
D511	G-12	IC202	J-4	Q705	K-10	TP605	G-10
D512	G-12	IC203	F-6	Q706	K10	TP606	G-12
D603	D-11	IC204	G-3	Q707	K-8	TP608	F-9
D604	E-11	IC205	H-4	Q708	K-8	TP610	D-11
D605	C-10	IC206	H-5			TP611	J-9
D606	D-11	IC207	H-2	RB101	K-2	TP612	H-10
D607	D-10	IC208	H-1	RB102	J-3	TP613	J-10
D608	D-10	IC209	H-3	RB103	A-1	TP614	J-10
D609	D-8	IC210	D-6	RB104	F-1	TP615	H-10
D610	F-10	IC301	D-4	RB201	J-7	TP618	H-10
D612	D-10	IC302	B-4	RB202	K-7	TP701	J-13
D613	D-9	IC303	B-5	RB203	K-6	TP703	J-12
D616	H-10	IC304	B-6	RB204	K-1	TP704	J-12
D618	E-10	IC305	A-7	RB205	K-5		
D619	E-10	IC306	A-6			TPE102	B-1
D620	E-9	IC401	B-12	RV401	A-11	TPE201	H-7
D621	E-9	IC402	A-12	RV402	A-12	TPE301	B-8
D622	K-12	IC403	A-13	RV403	A-12	TPE302	C-6
D623	K-12	IC404	C-13	RV404	A-8	TPE401	A-13
D624	K-12	IC405	B-11	RV405	A-9	TPE402	C-13
D625	K-12	IC406	B-10	RV406	A-9	TPE501	G-13
D701	K-12	IC407	B-9	RV407	A-10	TPE502	F-13
D702	K-12	IC501	G-13	RV408	C-13	TPE601	E-7
D703	K-12	IC502	F-13	RV409	D-13	TPE616	H-12
D704	K-13	IC503	G-12	RV410	B-12	TPE701	K-13
D705	C-7	IC504	H-13	RV411	C-13	TPE702	J-7
D706	C-7	IC505	H-12	RV412	D-13		
D707	K-9	IC506	F-12	RV413	B-12		
D708	K-9	IC507	E-12	RV501	F-12		
D709	K-8	IC601	G-8	RV502	D-12		
D710	K-8	IC602	F-8	RV601	F-9		
D711	J-12	IC603	F-9	RV602	H-9		
D712	J-12	IC604	G-9	RV603	D-12		
D714	F-13	IC605	F-11	RV701	K-12		
D715	K-13	IC606	H-11	RV702	K-13		
D716	K-13	IC607	C-9	RV703	K-12		
D717	K-13	IC608	C-11	RV704	K-9		
D718	K-13	IC609	G-11				
		IC610	E-9	RY1	D-10		
IC101	E-2	IC611	J-9				
IC102	C-2	IC612	H-9	SW201	A-3		
IC103	E-3	IC613	J-8	SW202	A-4		
IC104	D-3	IC614	H-8	SW203	A-5		
IC105	F-1	IC615	J-11	SW204	A-6		
IC106	J-2	IC616	D-8				
IC107	E-1	IC701	K-11	TP401	B-11		
IC108	D-2	IC702	J-13	TP402	B-10		
IC109	G-1	IC703	K-13	TP403	A-10		
IC110	C-1	IC704	J-12	TP404	B-10		

RS-24 BOARD (1-627-097-14)   S/N: 11201 AND HIGHER

Component Side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NORM
TEST SW201
SW202
SW203
REEL SERVO OFF
ON
SW204
RV404
RV405
RV406
RV407
RV401
RV402
RV403
TPE102 (D GND)
TPE302 (D GND)
TPE301 (A GND)
TPE601 (A GND)
TPE201 (D GND)
TPE702 (A GND)
TPE401 (A GND)
TPE402 (A GND)
TPE502 (D GND)
TPE501 (A GND)
TPE701 (A GND)
IC705
IC706
IN
GND
OUT
1/7
2/7
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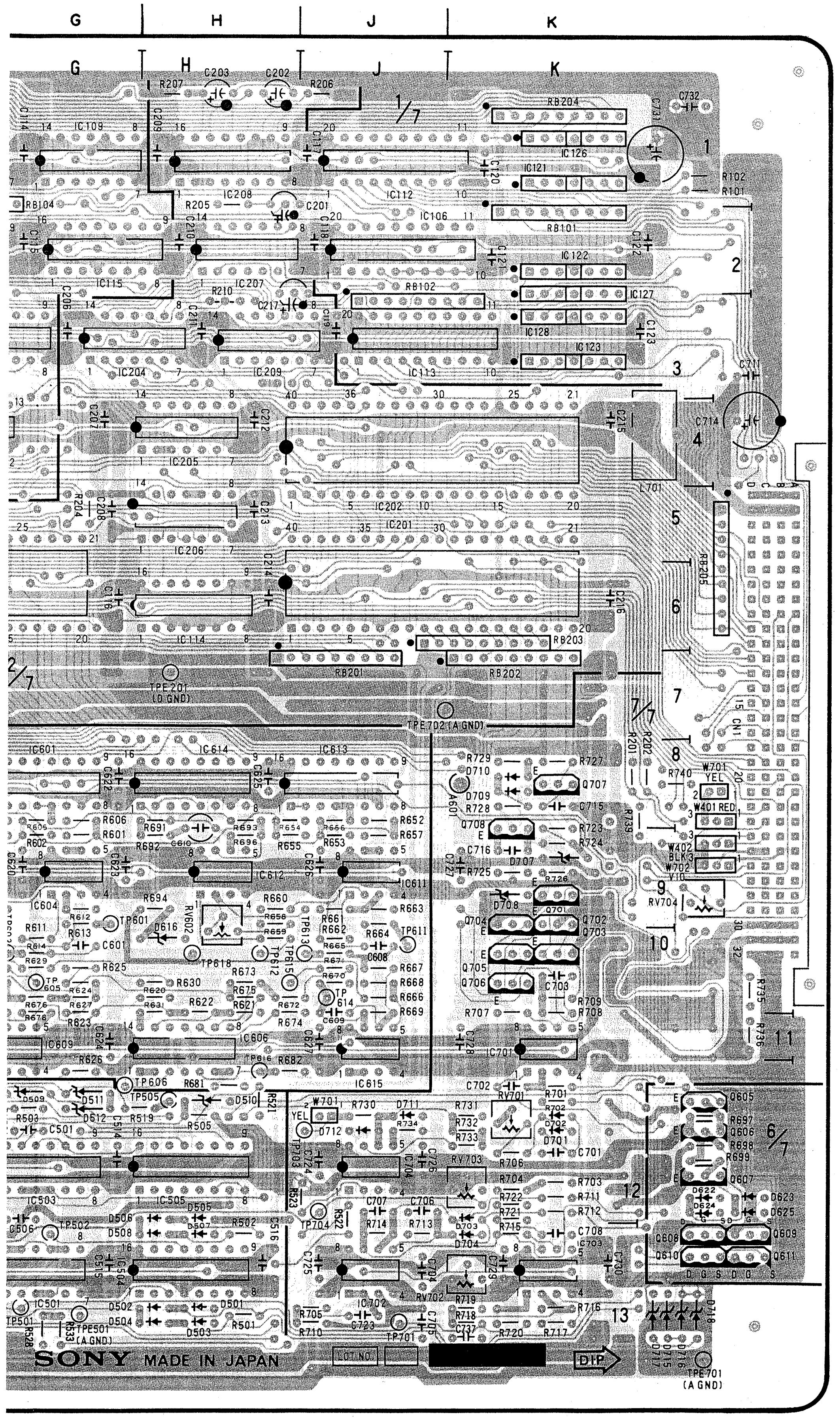
RS-24
A-7850-642-A
1-627-097-14
SONY MADE IN JAPAN
LOT NO.
DIP

Applied Serial No. 11201 and higher	
Jumpers that have been soldered or cut.	RV407-3 —×— T.H. (① See the board) RV407-3 —— R439

T.H. = Through hole

■ SOLDER SIDE PATTERN



Applied Serial No. 11201 and higher	
Jumpers that have been soldered or cut.	RV407-3 -✕- T.H. (① See the board) RV407-3 — R439

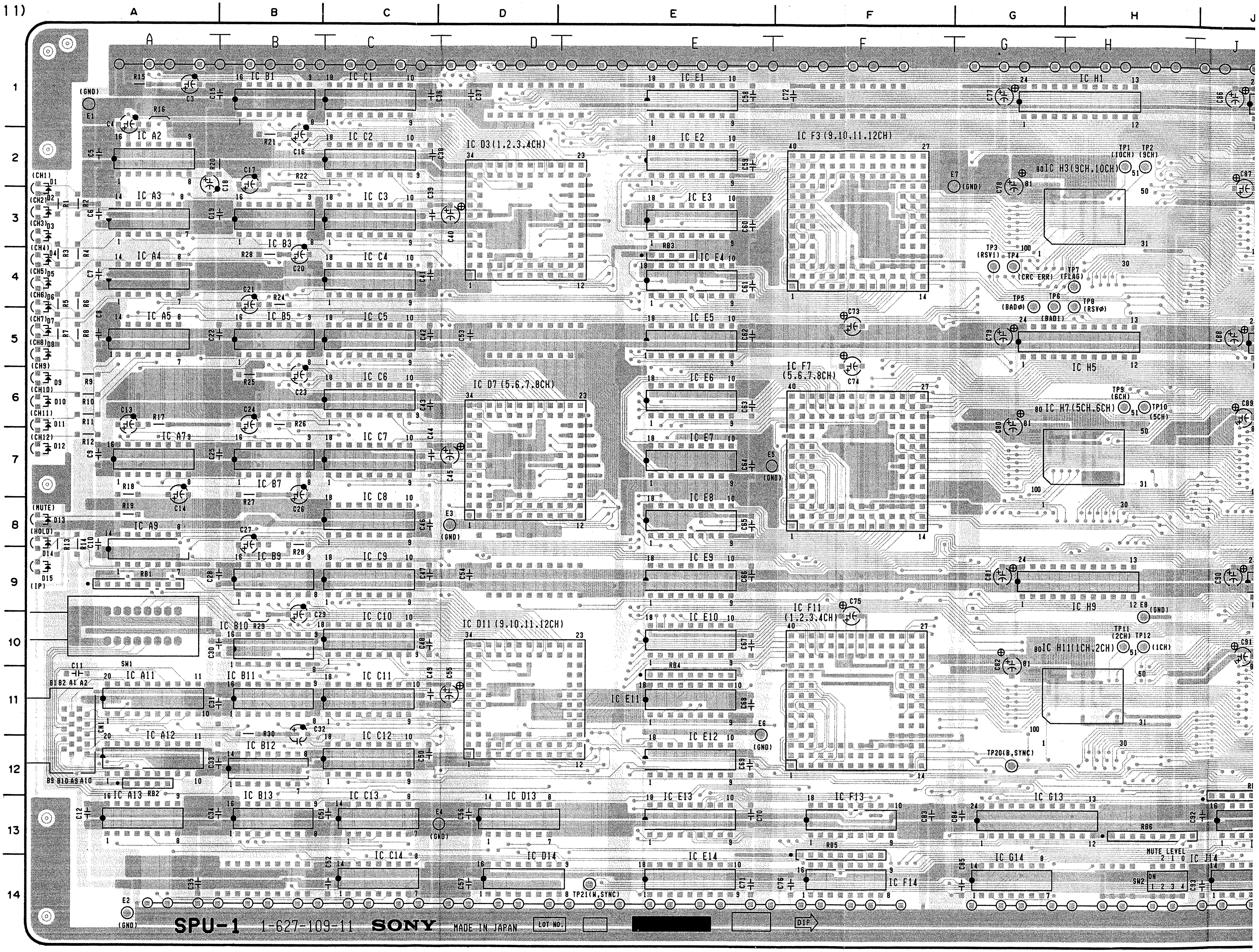
T.H. = Through hole

CN1	K-7
D101	A-1
D401	A-12
D402	A-12
D403	B-13
D404	B-13
D405	C-13
D406	C-13
D407	C-12
D408	C-12
D501	H-13
D502	H-13
D503	H-13
D504	H-13
D505	H-12
D506	H-12
D507	H-13
D508	H-13
D509	G-12
D510	H-12
D511	G-12
D512	G-12
D513	F-13
D514	F-13
D515	D-13
D516	F-13
D603	D-12
D604	E-11
D605	C-10
D606	D-11
D607	D-10
D608	D-10
D609	D-8
D610	F-10
D612	D-10
D613	D-9
D616	H-10
D618	E-10
D619	E-10
D620	E-9
D621	E-9
D622	K-12
D623	K-12
D624	K-12
D625	K-12
D701	K-12
D702	K-12
D703	K-12
D704	K-13
D705	C-7
D706	C-7
D707	K-9
D708	K-9
D709	K-8
D710	K-8
D711	J-12
D712	J-12
D714	F-13
D715	K-13
D716	K-13
D717	K-13
D718	K-13
IC101	E-2
IC102	C-2
IC103	E-3
IC104	D-3
IC105	F-1
IC106	J-2
IC107	E-1
IC108	D-2
IC109	G-1
IC110	C-1
IC111	D-1
IC112	J-1
IC113	J-3
IC114	H-6
IC115	G-2
IC116	F-3
IC117	C-3
IC118	F-4
IC119	B-2
IC120	F-2
IC121	K-1
IC122	K-2
IC123	K-3
IC124	B-1
IC125	A-1
IC126	K-1
IC127	K-3
IC128	K-3
IC129	B-1
IC130	A-1
IC201	J-6
IC202	J-4
IC203	F-6
IC204	G-3
IC205	H-4
IC206	H-5
IC207	H-2
IC208	H-1
IC209	H-3
IC210	D-6
IC301	D-4
IC302	B-4
IC303	B-5
IC304	B-6
IC305	A-7
IC306	A-6
IC401	B-12
IC402	A-12
IC403	A-13
IC404	C-13
IC405	B-11
IC406	B-10
IC407	B-9
IC501	G-13
IC502	F-13
IC503	G-12
IC504	H-13
IC505	H-12
IC506	F-12
IC507	E-12
IC508	E-13
IC601	G-8
IC602	F-8
IC603	F-9
IC604	G-9
IC605	F-11
IC606	H-11
IC607	C-9
IC608	C-11
IC609	G-11
IC610	E-9
IC611	J-9
IC612	H-9
IC613	J-8
IC614	H-8
IC615	J-11
IC616	D-8
IC701	K-11
IC702	J-13
IC703	K-13
IC704	J-12
IC705	C-7
IC706	D-7
IC707	E-13
IC708	D-12
Q501	F-13
Q601	C-9
Q602	E-12
Q603	E-11
Q604	D-10
Q605	K-12
Q606	K-12
Q607	K-12
Q608	K-13
Q609	K-13
Q610	K-13
Q611	K-13
Q701	K-9
Q702	K-9
Q703	K-10
Q704	K-9
Q705	K-10
Q706	K10
Q707	K-8
Q708	K-8
RB101	K-2
RB102	J-3
RB103	A-1
RB104	F-1
RB201	J-7
RB202	K-7
RB203	K-6
RB204	K-1
RB205	K-5
RV301	A-4
RV401	A-11
RV402	A-12
RV403	A-12
RV404	A-8
RV405	A-9
RV406	A-9
RV407	A-10
RV408	C-13
RV409	D-13
RV410	B-12
RV411	C-13
RV412	D-13
RV413	B-12
RV501	F-12
RV502	D-12
RV601	F-9
RV602	H-9
RV603	D-12
RV701	K-12
RV702	K-13
RV703	K-12
RV704	K-9
RY1	D-10
SW201	A-3
SW202	A-4
SW203	A-5
SW204	A-6
TP401	B-11
TP402	B-10
TP403	A-10
TP404	B-10
TP405	B-9
TP406	B-9
TP407	A-9
TP412	C-12
TP413	B-13
TP414	B-12
TP415	B-13
TP416	C-11
TP417	C-12
TP418	C-12
TP419	B-10
TP420	A-12
TP421	B-10
TP501	G-13
TP502	G-13
TP504	E-12
TP505	H-12
TP601	G-9
TP602	F-10
TP603	G-10
TP604	F-10
TP605	G-10
TP606	G-12
TP608	F-9
TP609	D-9
TP610	D-11
TP611	J-10
TP612	H-10
TP613	J-10
TP614	J-10
TP615	H-10
TP616	H-12
TP618	H-10
TP701	J-13
TP703	J-12
TP704	J-12
TPE102	B-1
TPE201	H-7
TPE301	B-8
TPE302	C-6
TPE401	A-13
TPE402	C-13
TPE501	G-13
TPE502	F-13
TPE601	E-7
TPE701	K-13
TPE702	J-7

CARD RACK SPU-1 BOARD

SPU-1 BOARD (1-627-109-11)
Component Side

S/N; 10001 TO 10500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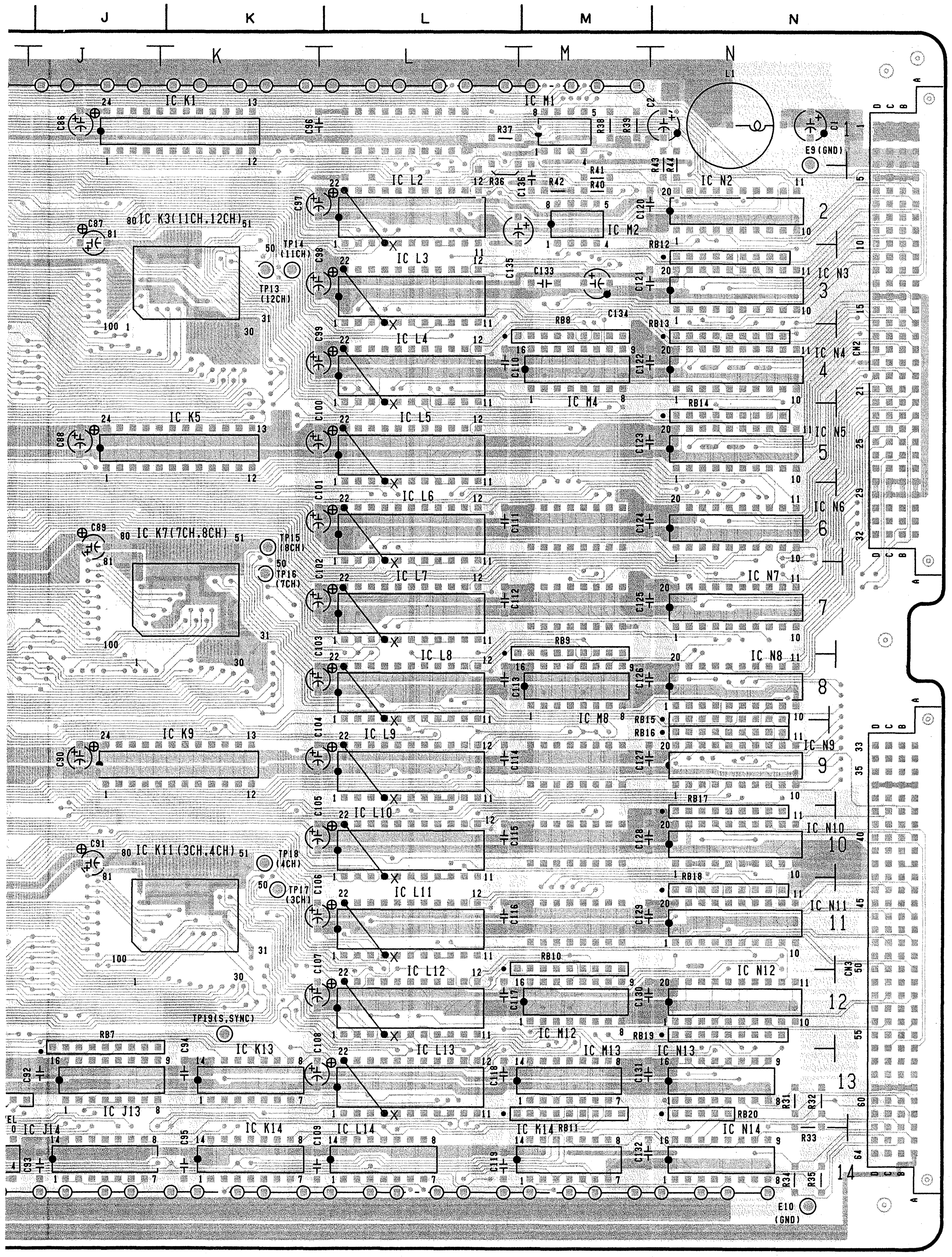
IC B1
IC C1
IC E1
IC H1
IC A2
IC C2
IC D3 (1.2.3.4CH)
IC E2
IC F3 (9.10.11.12CH)
IC H3 (9CH.10CH)
IC A3
IC C3
IC E3
IC A4
IC B3
IC C4
IC E4
IC A5
IC B5
IC C5
IC E5
IC H5
IC C6
IC D7 (5.6.7.8CH)
IC E6
IC F7 (5.6.7.8CH)
IC H7 (5CH.6CH)
IC A7
IC C7
IC E7
IC B7
IC C8
IC E8
IC A9
IC B9
IC C9
IC E9
IC H9
IC B10
IC C10
IC D11 (9.10.11.12CH)
IC E10
IC F11 (1.2.3.4CH)
IC H11 (1CH.2CH)
IC A11
IC B11
IC C11
IC E11
IC A12
IC B12
IC C12
IC E12
IC A13
IC B13
IC C13
IC D13
IC E13
IC F13
IC G13
IC C14
IC D14
IC E14
IC F14
IC G14
IC J14
(GND)
(CH1)
(CH2)
(CH3)
(CH4)
(CH5)
(CH6)
(CH7)
(CH8)
(CH9)
(CH10)
(CH11)
(CH12)
(MUTE)
(HOLD)
(IP)
TP1 (10CH)
TP2 (9CH)
TP3 (RSV1)
TP4 (CRC ERR)
TP5 (BADφ)
TP6 (BAD1)
TP7 (FLAG)
TP8 (RSVφ)
TP9 (6CH)
TP10 (5CH)
TP11 (2CH)
TP12 (1CH)
TP20 (B.SYNC)
TP21 (W.SYNC)
SW1
SW2
MUTE LEVEL
CN1
RB1
RB2
RB3
RB4
RB5
RB6
SPU-1 1-627-109-11 SONY MADE IN JAPAN
LOT NO.
DIP

▨ SOLDER SIDE PATTERN

CARD RACK SPU-1 BOARD


J
K
L
M
N
IC K1
IC M1
L1
E9 (GND)
IC L2
IC N2
IC K3 (11CH.12CH)
IC M2
TP14 (11CH)
TP13 (12CH)
IC L3
IC N3
IC L4
IC N4
IC M4
IC K5
IC L5
IC N5
IC L6
IC N6
IC K7 (7CH.8CH)
TP15 (8CH)
TP16 (7CH)
IC L7
IC N7
IC L8
IC N8
IC M8
IC K9
IC L9
IC N9
IC L10
IC N10
IC K11 (3CH.4CH)
TP18 (4CH)
TP17 (3CH)
IC L11
IC N11
IC L12
IC N12
TP19 (S.SYNC)
IC K13
IC L13
IC M13
IC N13
IC M12
IC J13
IC J14
IC K14
IC L14
IC N14
E10 (GND)
CN2
CN3

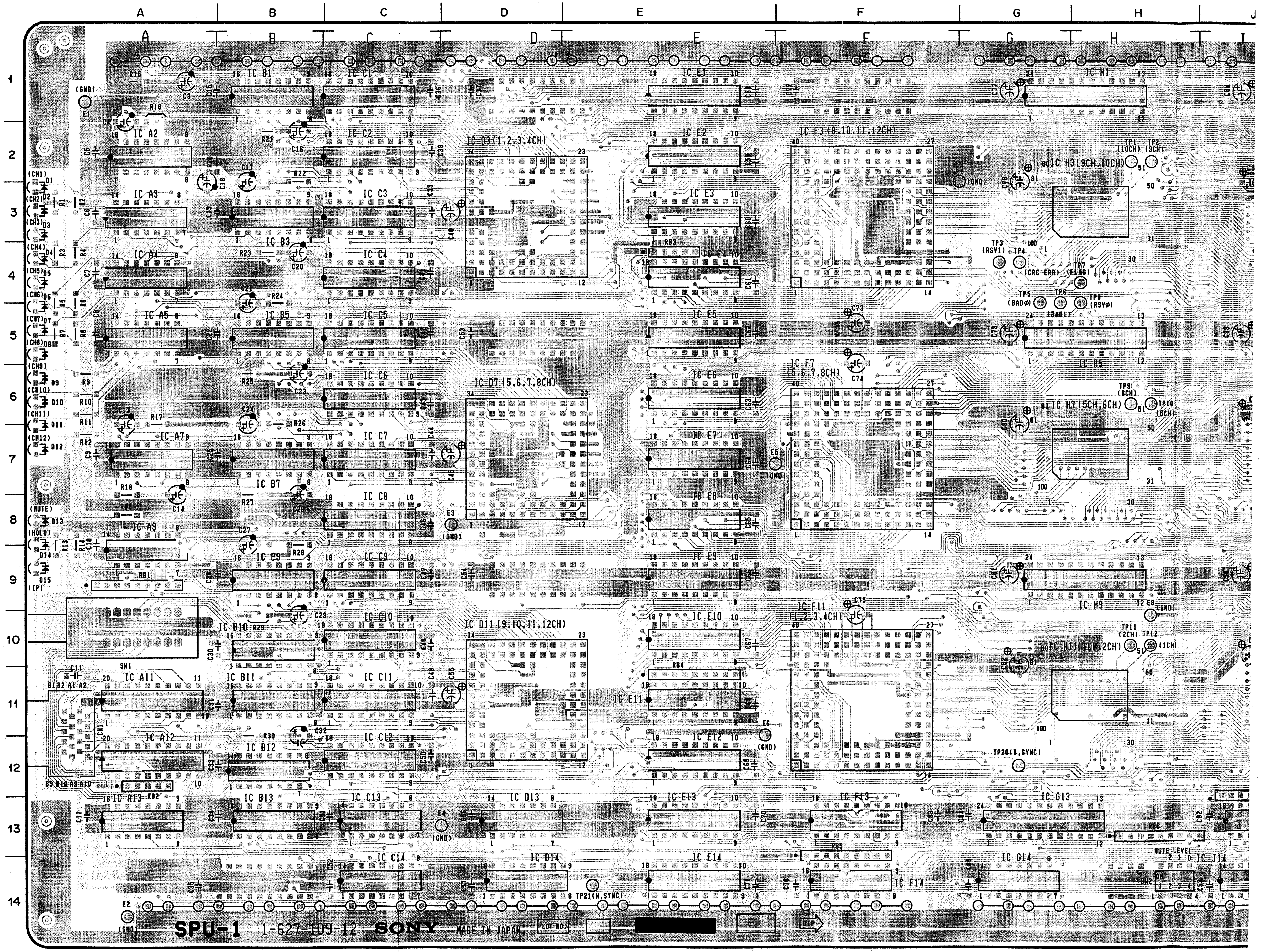
Applied Serial No. Up to 10500	
Jumpers that have been soldered or cut.	ICL2-4 —×— ICL2-5 ICL3-4 —×— ICL3-5 ICL4-4 —×— ICL4-5 ICL5-4 —×— ICL5-5 ICL6-4 —×— ICL6-5 ICL7-4 —×— ICL7-5 ICL8-4 —×— ICL8-5 ICL9-4 —×— ICL9-5 ICL10-4 —×— ICL10-5 ICL11-4 —×— ICL11-5 ICL12-4 —×— ICL12-5 ICL13-4 —×— ICL13-5 ICL2-4 — ICL2-22 ICL3-4 — ICL3-22 ICL4-4 — ICL4-22 ICL5-4 — ICL5-22 ICL6-4 — ICL6-22 ICL7-4 — ICL7-22 ICL8-4 — ICL8-22 ICL9-4 — ICL9-22 ICL10-4 — ICL10-22 ICL11-4 — ICL11-22 ICL12-4 — ICL12-22 ICL13-4 — ICL13-22

CN1	A-11
CN2	N-4
CN3	N-12
D1	A-2
D2	A-3
D3	A-3
D4	A-4
D5	A-4
D6	A-4
D7	A-5
D8	A-5
D9	A-6
D10	A-6
D11	A-6
D12	A-7
D13	A-8
D14	A-8
D15	A-9
E1	A-1
E2	A-14
E3	D-7
E4	C-13
E5	E-7
E6	E-11
E7	G-2
E8	H-10
E9	N-2
E10	N-14
ICA2	A-2
ICA3	A-3
ICA4	A-4
ICA5	A-5
ICA7	A-7
ICA9	A-8
ICA11	A-11
ICA12	A-12
ICA13	A-13
ICB1	B-1
ICB3	B-3
ICB5	B-5
ICB7	B-7
ICB9	B-9
ICB10	B-10
ICB11	B-11
ICB12	B-12
ICB13	B-13
ICC1	C-1
ICC2	C-2
ICC3	C-3
ICC4	C-4
ICC5	C-5
ICC6	C-6
ICC7	C-7
ICC8	C-8
ICC9	C-9
ICC10	C-10
ICC11	C-11
ICC12	C-12
ICC13	C-13
ICC14	C-14
ICD3	D-3
ICD7	D-7
ICD11	D-11
ICD14	D-14
ICE1	E-1
ICE2	E-2
ICE3	E-3
ICE4	E-4
ICE5	E-5
ICE6	E-6
ICE7	E-7
ICE8	E-8
ICE9	E-9
ICE10	E-10
ICE11	E-11
ICE12	E-12
ICE13	D-13
ICE13	E-13
ICE14	E-14
ICF3	F-3
ICF7	F-7
ICF11	F-11
ICF13	F-13
ICF14	F-14
ICG13	G-13
ICG14	G-14
ICH1	H-1
ICH3	H-3
ICH5	H-5
ICH7	H-7
ICH9	H-9
ICH11	H-11
ICJ13	J-13
ICJ14	J-14
ICK1	K-1
ICK3	K-3
ICK5	K-5
ICK7	K-7
ICK9	K-9
ICK11	K-11
ICK13	K-13
ICK14	K-14
ICL2	L-2
ICL3	L-3
ICL4	L-4
ICL5	L-5
ICL6	L-6
ICL7	L-7
ICL8	L-8
ICL9	L-9
ICL10	L-10
ICL11	L-11
ICL12	L-12
ICL13	L-13
ICL14	L-14
ICM1	M-1
ICM2	M-2
ICM4	M-4
ICM8	M-8
ICM12	M-12
ICM13	M-13
ICM14	M-14
ICN2	N-2
ICN3	N-3
ICN4	N-4
ICN5	N-5
ICN6	N-6
ICN7	N-7
ICN8	N-8
ICN9	N-9
ICN10	N-10
ICN11	N-11
ICN12	N-12
ICN13	N-13
ICN14	N-14
RB1	A-9
RB2	A-12
RB3	E-4
RB4	E-11
RB5	F-13
RB6	H-13
RB7	J-12
RB8	M-4
RB9	M-7
RB10	M-11
RB11	M-13
RB12	N-3
RB13	N-4
RB14	N-5
RB15	N-9
RB16	N-9
RB17	N-10
RB18	N-11
RB19	N-12
RB20	N-13
SW1	A-10
SW2	H-14
TP1	H-2
TP2	H-2
TP3	G-4
TP4	G-4
TP5	G-4
TP6	G-4
TP7	H-4
TP8	H-4
TP9	H-6
TP10	H-6
TP11	H-10
TP12	H-10
TP13	K-3
TP14	K-3
TP15	K-6
TP16	K-7
TP17	K-11
TP18	K-10
TP19	K-12
TP20	G-12
TP21	E-14

CARD RACK SPU-1 BOARD

SPU-1 BOARD (1-627-109-12)
Component Side

S/N; 10501 AND HIGHER


A
B
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IC A2
IC A3
IC A4
IC A5
IC A7
IC A9
IC A11
IC A12
IC A13
IC B1
IC B3
IC B5
IC B7
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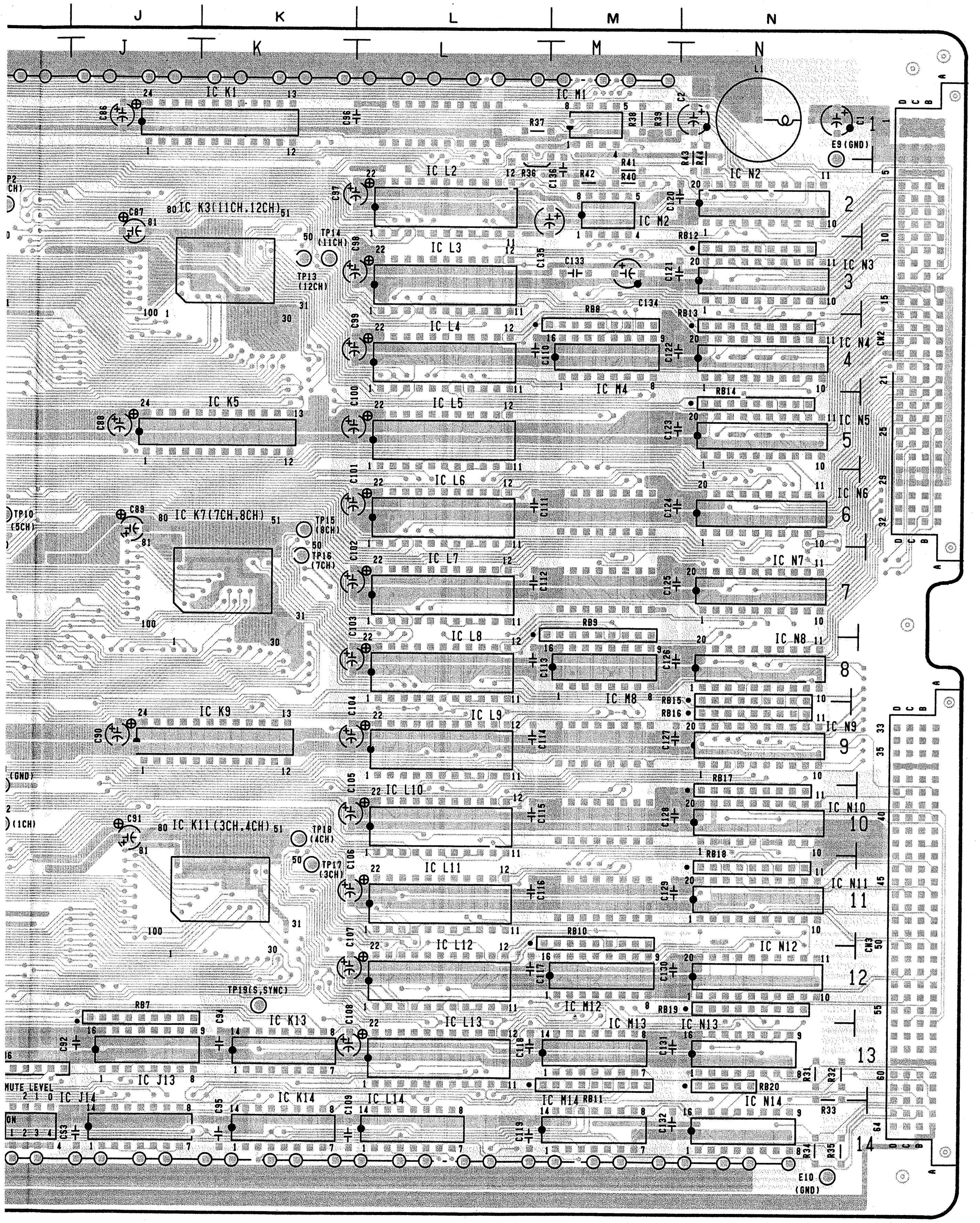
IC B10
IC B11
IC B12
IC B13
IC C1
IC C2
IC C3
IC C4
IC C5
IC C6
IC C7
IC C8
IC C9
IC C10
IC C11
IC C12
IC C13
IC C14
IC D3 (1.2.3.4CH)
IC D7 (5.6.7.8CH)
IC D11 (9.10.11.12CH)
IC D13
IC D14
IC E1
IC E2
IC E3
IC E4
IC E5
IC E6
IC E7
IC E8
IC E9
IC E10
IC E11
IC E12
IC E13
IC E14
IC F3 (9.10.11.12CH)
IC F7 (5.6.7.8CH)
IC F11 (1.2.3.4CH)
IC F13
IC F14
IC G13
IC G14
IC H1
IC H3 (9CH.10CH)
IC H5
IC H7 (5CH.6CH)
IC H9
IC H11 (1CH.2CH)
IC J14
(GND)
TP1 (10CH)
TP2 (9CH)
TP3 (RSV1)
TP4
TP5 (BADφ)
TP6 (BAD1)
TP7 (FLAG)
TP8 (RSVφ)
(CRC ERR)
TP9 (6CH)
TP10 (5CH)
TP11 (2CH)
TP12 (1CH)
TP20 (B.SYNC)
TP21 (W.SYNC)
(CH1)
(CH2)
(CH3)
(CH4)
(CH5)
(CH6)
(CH7)
(CH8)
(CH9)
(CH10)
(CH11)
(CH12)
(MUTE)
(HOLD)
(IP)
SW1
SW2
CN1
MUTE LEVEL
ON
SPU-1 1-627-109-12 SONY MADE IN JAPAN
LOT NO.
DIP

■ SOLDER SIDE PATTERN

CARD RACK SPU-1 BOARD


J
K
L
M
N
IC K1
IC M1
IC N2
IC L2
IC M2
IC K3 (11CH.12CH)
TP14 (11CH)
TP13 (12CH)
IC L3
IC N3
IC L4
IC N4
IC M4
IC K5
IC L5
IC N5
IC L6
IC N6
IC K7 (7CH.8CH)
TP15 (8CH)
TP16 (7CH)
TP10 (5CH)
IC L7
IC N7
IC L8
IC N8
IC M8
IC K9
IC L9
IC N9
IC L10
IC N10
IC K11 (3CH.4CH)
TP18 (4CH)
TP17 (3CH)
IC L11
IC N11
IC L12
IC N12
IC M12
TP19 (S,SYNC)
IC K13
IC L13
IC M13
IC N13
IC J13
IC J14
IC K14
IC L14
IC M14
IC N14
MUTE LEVEL
E9 (GND)
E10 (GND)
(GND)
(1CH)
CN2
CN3
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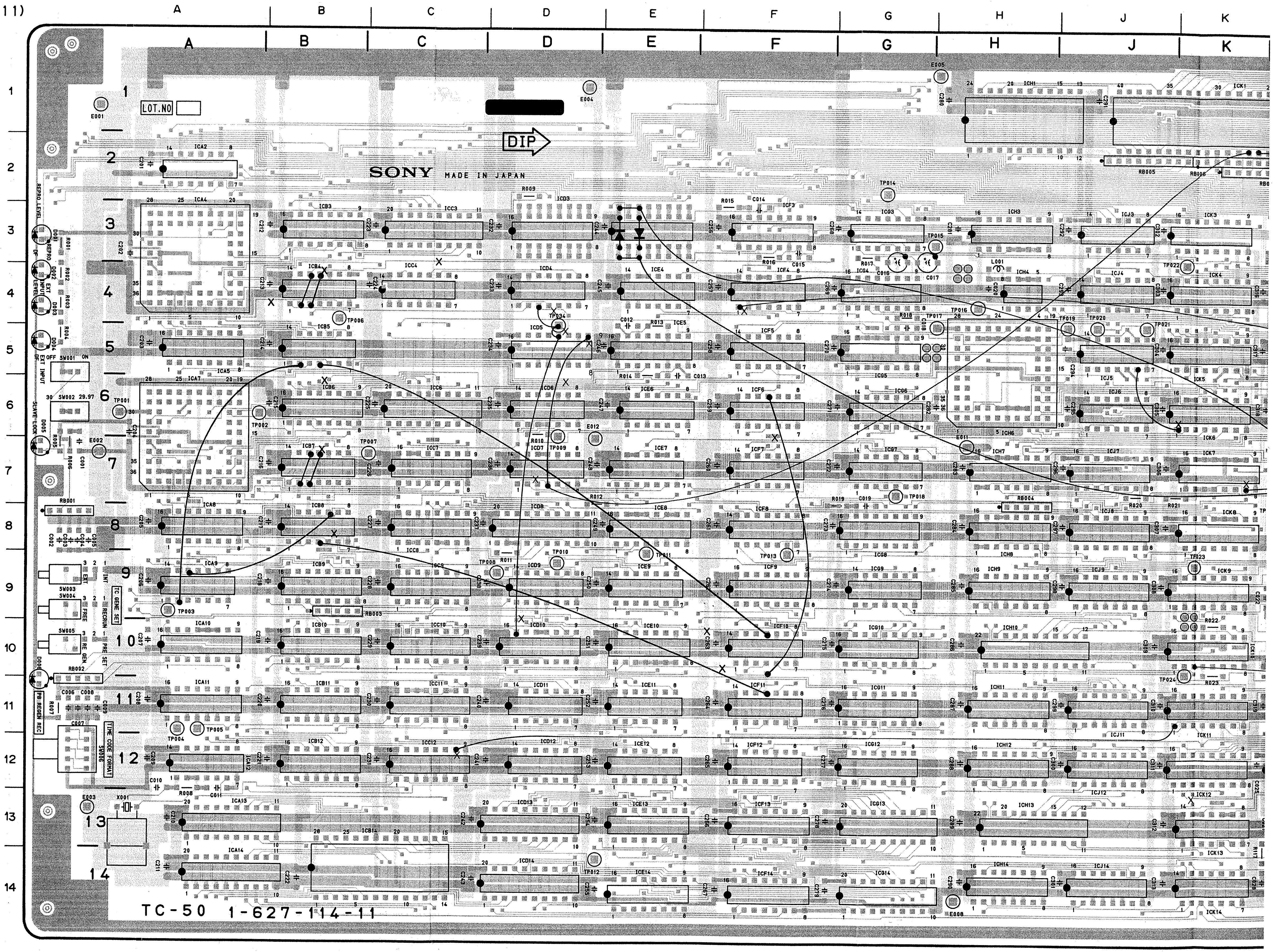
14

CN1	A-11
CN2	N-4
CN3	N-12
D1	A-3
D2	A-3
D3	A-3
D4	A-4
D5	A-4
D6	A-5
D7	A-5
D8	A-5
D9	A-6
D10	A-6
D11	A-6
D12	A-7
D13	A-8
D14	A-8
D15	A-9
E1	A-1
E2	A-14
E3	D-8
E4	C-13
E5	F-7
E6	E-11
E7	G-2
E8	H-10
E9	N-1
E10	N-14
ICA2	A-2
ICA3	A-3
ICA4	A-4
ICA5	A-5
ICA7	A-7
ICA9	A-8
ICA11	A-11
ICA12	A-12
ICA13	A-13
ICB1	B-1
ICB3	B-3
ICB5	B-5
ICB7	B-7
ICB9	B-9
ICB10	B-10
ICB11	B-11
ICB12	B-12
ICB13	B-13
ICC1	C-1
ICC2	C-2
ICC3	C-3
ICC4	C-4
ICC5	C-5
ICC6	C-6
ICC7	C-7
ICC8	C-8
ICC9	C-9
ICC10	C-10
ICC11	C-11
ICC12	C-12
ICC13	C-13
ICC14	C-14
ICD3	D-3
ICD7	D-7
ICD11	D-11
ICD13	D-13
ICD14	D-14
ICE1	E-1
ICE2	E-2
ICE3	E-3
ICE4	E-4
ICE5	E-5
ICE6	E-6
ICE7	E-7
ICE8	E-8
ICE9	E-9
ICE10	E-10
ICE11	E-11
ICE12	E-12
ICE13	E-13
ICE14	E-14
ICF3	F-3
ICF7	F-7
ICF11	F-11
ICF13	F-13
ICF14	F-14
ICG13	G-13
ICG14	G-14
ICH1	H-1
ICH3	H-3
ICH5	H-5
ICH7	H-7
ICH9	H-9
ICH11	H-11
ICJ13	J-13
ICJ14	J-14
ICK1	K-1
ICK3	K-3
ICK5	K-5
ICK7	K-7
ICK9	K-9
ICK11	K-11
ICK13	K-13
ICK14	K-14
ICL2	L-2
ICL3	L-3
ICL4	L-4
ICL5	L-5
ICL6	L-6
ICL7	L-7
ICL8	L-8
ICL9	L-9
ICL10	L-10
ICL11	L-11
ICL12	L-12
ICL13	L-13
ICL14	L-14
ICM1	M-1
ICM2	M-2
ICM4	M-4
ICM8	M-8
ICM12	M-12
ICM13	M-13
ICM14	M-14
ICN2	N-2
ICN3	N-3
ICN4	N-4
ICN5	N-5
ICN6	N-6
ICN7	N-7
ICN8	N-8
ICN9	N-9
ICN10	N-10
ICN11	N-11
ICN12	N-12
ICN13	N-13
ICN14	N-14
RB1	A-9
RB2	A-12
RB3	E-4
RB4	E-11
RB5	F-14
RB6	H-13
RB7	J-13
RB8	M-4
RB9	M-7
RB10	M-11
RB11	M-13
RB12	N-3
RB13	N-4
RB14	N-5
RB15	N-9
RB16	N-9
RB17	N-10
RB18	N-11
RB19	N-12
RB20	N-13
SW1	A-10
SW2	H-14
TP1	H-2
TP2	H-2
TP3	G-4
TP4	G-4
TP5	G-4
TP6	G-4
TP7	H-4
TP8	H-4
TP9	H-6
TP10	H-6
TP11	H-10
TP12	H-10
TP13	K-3
TP14	K-3
TP15	K-6
TP16	K-7
TP17	K-11
TP18	K-10
TP19	K-12
TP20	G-12
TP21	E-14

TC-50 BOARD (1-627-114-11)
Component Side

S/N; 10001 TO 10300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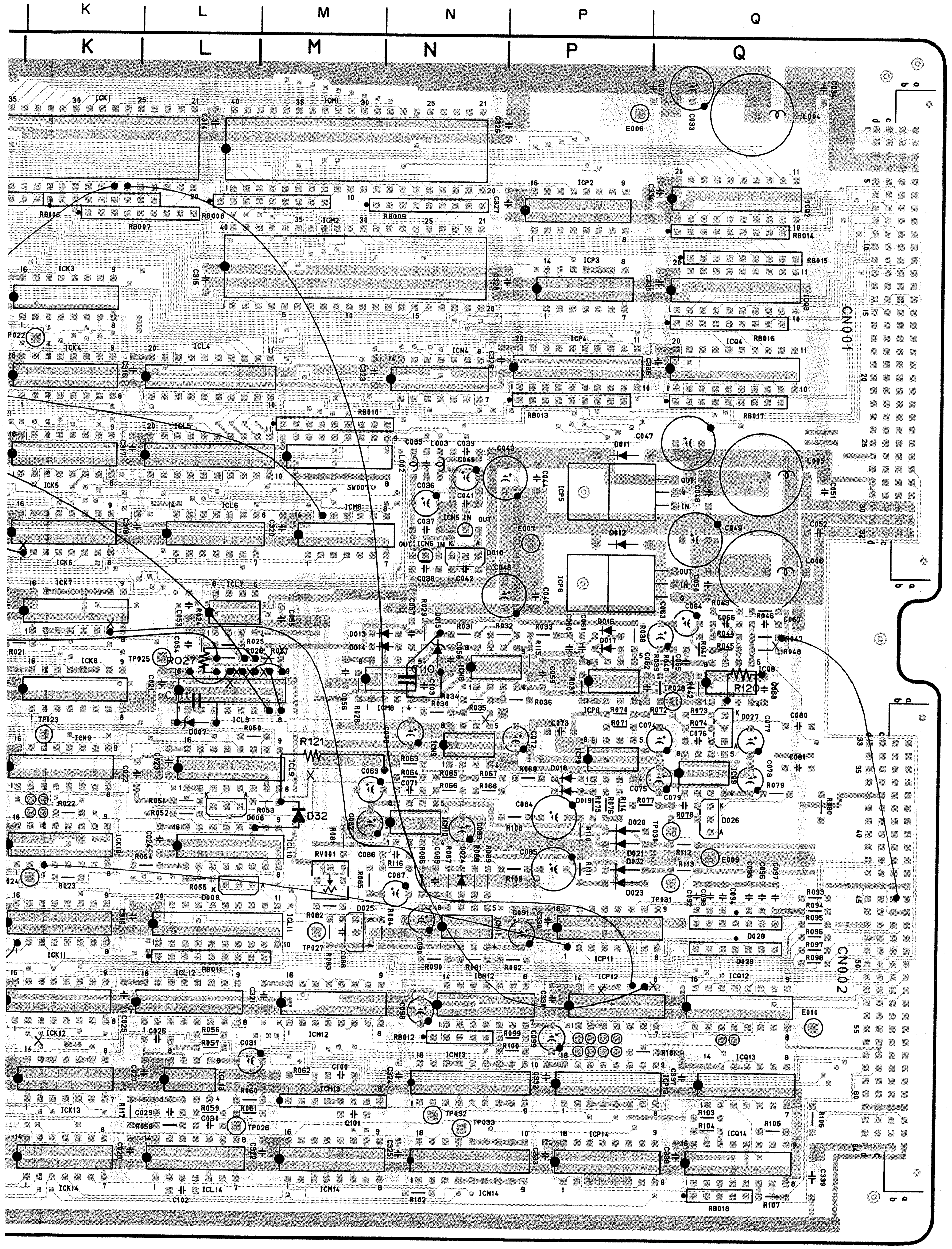
14
LOT.NO
DIP
SONY MADE IN JAPAN
REPRO LEVEL
INPUT LEVEL
EXT INPUT
SLAVE-LOCK
INT
EXT
FREE
RECRUN
RE GEN
PRE SET
TC REGE SET
PB REGEN REC
TIME CODE FORMAT
SW001
SW002
SW003
SW004
SW005
SW006
ICA2
ICA4
ICA7
ICH1
ICK1
RB005
RB006
E001
E002
E003
E004
E005
E008
X001
TC-50 1-627-114-11

■ SOLDER SIDE PATTERN

CARD RACK TC-50 BOARD



Applied Serial No. 10001 and higher	
Jumpers that have been cut.	R35 ⟶✕⟵ D32 cathode
Parts that have been added.	R121

Applied Serial No. Up to 10100	
Jumpers that have been soldered or cut.	ICP12-9 ⟶✕⟵ ICM6-3 ICP12-9 — ICM6-7 (GND)

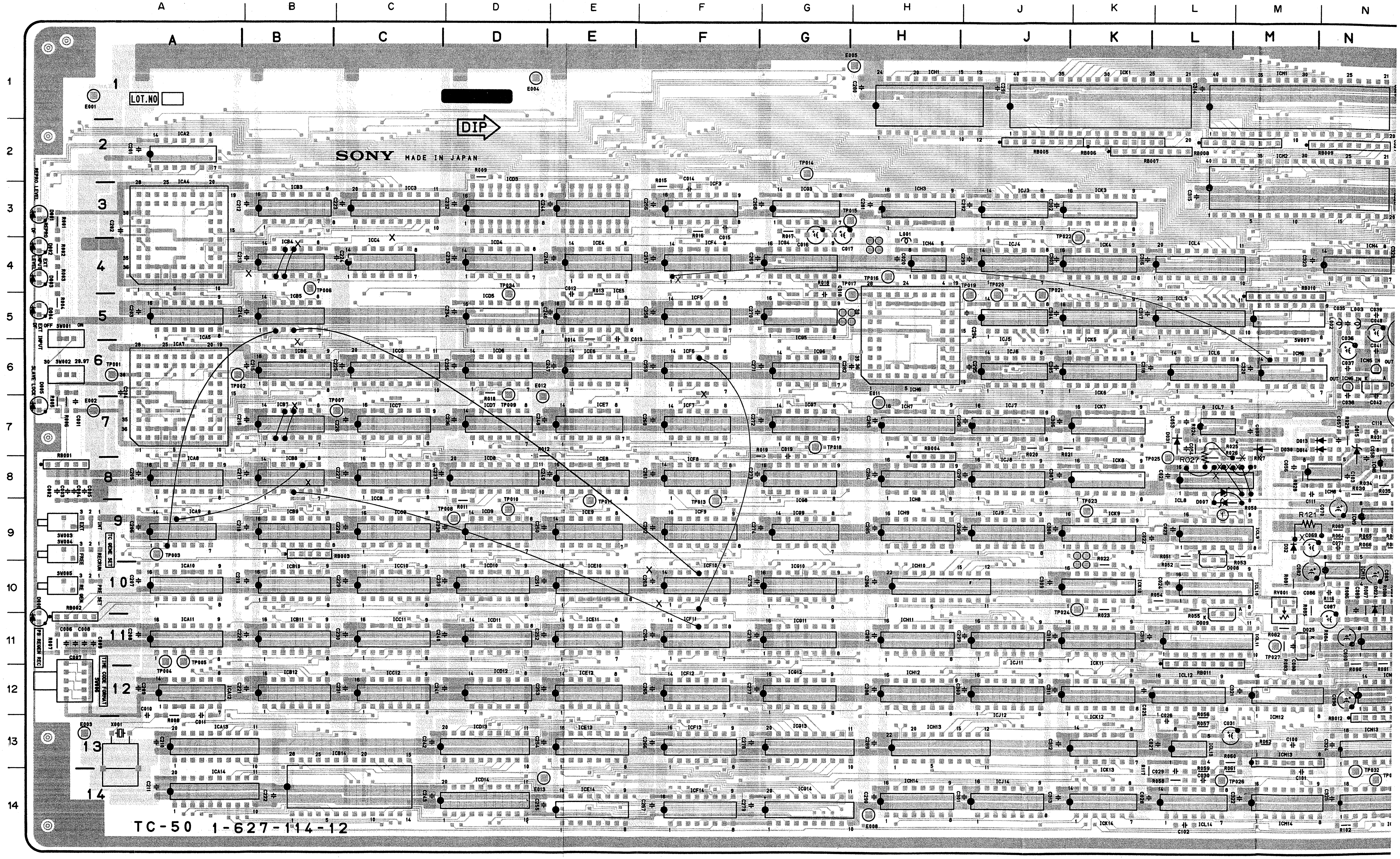
Applied Serial No. Up to 10300	
Jumpers that have been soldered or cut.	GND ⟶✕⟵ CNDB45 ICC12-10 ⟶✕⟵ +5 V ICD4-3 ⟶✕⟵ ICD5-11 ICD5-9 ⟶✕⟵ +5 V ICD7-1 ⟶✕⟵ ICD7-4 ICD10-15 ⟶✕⟵ ICD5-11 ICK6-1 ⟶✕⟵ GND ICK7-7 ⟶✕⟵ GND ICK12-2 ⟶✕⟵ T.H. ICN9-9 ⟶✕⟵ TP029 ICP12-8 ⟶✕⟵ ICP12-9 ICL8-10 ⟶✕⟵ ICL8-11 ICL8-11 ⟶✕⟵ ICL8-12 ICL8-12 ⟶✕⟵ ICL8-13 ICL8-13 ⟶✕⟵ GND R47 ⟶✕⟵ GND TP34 ⟶✕⟵ ICD5-11 ICA9-2 ⟶✕⟵ ICB4-6 ICA9-12 ⟶✕⟵ ICB7-6 ICB4-5 ⟶✕⟵ ICB4-12 ICB4-11 ⟶✕⟵ ICG5-6 ICB7-5 ⟶✕⟵ ICB7-12 ICB7-11 ⟶✕⟵ ICB4-11 ICF10-11 ⟶✕⟵ ICB8-4 ICF10-11 ⟶✕⟵ ICF6-11 ICF11-11 ⟶✕⟵ ICB5-4 ICC12-10 — ICK11-1 ICD4-3 — TP34 ICD5-12 — ICD10-15 ICD7-4 — ICD5-9 ICD7-4 — ICK1-14 ICK1-15 — ICP12-9 ICK6-1 — ICJ5-6 ICK10-3 — ICP11-1 ICL8-9 — ICL8-11 ICL8-10 — ICL8-8 ICL8-12 — ICL8-7 ICL8-16 — ICL8-13 ICP12-10 — ICK7-7 R47 — CNB45 TP34 — ICD5-12 ICB4-2 — ICB4-12 ICB4-3 — ICB4-11 ICB5-2 — ICA9-2 ICB5-4 — ICF10-11 ICB7-2 — ICB7-12 ICB7-3 — ICB7-11 ICB8-4 — ICF11-11 ICB8-10 — ICA9-12 ICF11-11 — ICF6-11
Parts that have been added.	■ C110, C111 (① See the board) ■ D30 ICE3-2 — ICE3-15 ■ D31 ICE3-4 — ICE3-13 ■ D32 R53 — GND ■ R120 ICQ8-2 — GND

T.H. = Through hole

CN001	Q-3
CN002	Q-12
D001	A-3
D002	A-4
D003	A-4
D004	A-5
D005	A-7
D006	A-11
D007	L-9
D008	L-9
D009	L-10
D010	N-6
D011	P-5
D012	P-6
D013	N-7
D014	N-7
D015	N-7
D016	P-7
D017	P-7
D018	P-9
D019	P-9
D020	P-10
D021	P-10
D022	P-10
D023	P-10
D024	N-10
D025	M-11
D026	Q-10
D027	Q-9
D028	Q-11
D029	Q-11
E001	A-1
E002	A-7
E003	A-13
E004	D-1
E005	H-1
E006	P-1
E007	P-6
E008	H-14
E009	Q-10
E010	Q-12
E011	H-7
E012	D-7
ICA2	A-2
ICA4	A-3
ICA5	A-5
ICA7	A-6
ICA8	A-8
ICA9	A-9
ICA10	A-10
ICA11	A-11
ICA12	A-12
ICA13	A-13
ICA14	A-14
ICB3	B-3
ICB4	B-4
ICB5	B-5
ICB6	B-6
ICB7	B-7
ICB8	B-8
ICB9	B-9
ICB10	B-10
ICB11	B-11
ICB12	B-12
ICB14	C-14
ICC3	C-3
ICC4	C-4
ICC6	C-6
ICC7	C-7
ICC8	C-8
ICC9	C-9
ICC10	C-10
ICC11	C-11
ICC12	C-12
ICD3	D-3
ICD4	D-4
ICD5	D-5
ICD6	D-6
ICD7	D-7
ICD8	D-8
ICD9	D-9
ICD10	D-10
ICD11	D-11
ICD12	D-12
ICD13	D-13
ICD14	D-14
ICE3	E-3
ICE4	E-4
ICE5	E-5
ICE6	E-6
ICE7	E-7
ICE8	E-8
ICE9	E-9
ICE10	E-10
ICE11	E-11
ICE12	E-12
ICE13	E-13
ICE14	E-14
ICF3	F-3
ICF4	F-4
ICF5	F-5
ICF6	F-6
ICF7	F-7
ICF8	F-8
ICF9	F-9
ICF10	F-10
ICF11	F-11
ICF12	F-12
ICF13	F-13
ICF14	F-14
ICG3	G-3
ICG4	G-4
ICG5	G-5
ICG6	G-6
ICG7	G-7
ICG8	G-8
ICG9	G-9
ICG10	G-10
ICG11	G-11
ICG12	G-12
ICG13	G-13
ICG14	G-14
ICH1	H-1
ICH3	H-3
ICH4	H-4
ICH6	H-6
ICH7	H-7
ICH8	H-8
ICH9	H-9
ICH10	H-10
ICH11	H-11
ICH12	H-12
ICH13	H-13
ICH14	H-14
ICJ3	J-3
ICJ4	J-4
ICJ5	J-5
ICJ6	J-6
ICJ7	J-7
ICJ8	J-8
ICJ9	J-9
ICJ11	J-11
ICJ12	J-12
ICJ14	J-14
ICK1	K-1
ICK3	K-3
ICK4	K-4
ICK5	K-5
ICK6	K-6
ICK7	K-7
ICK8	K-8
ICK9	K-9
ICK10	K-10
ICK11	K-11
ICK12	K-12
ICK13	K-13
ICK14	K-14
ICL4	L-4
ICL5	L-5
ICL6	L-6
ICL7	L-7
ICL8	L-8
ICL9	L-9
ICL10	L-10
ICL11	L-11
ICL12	L-12
ICL13	L-13
ICL14	L-14
ICM1	M-1
ICM2	M-3
ICM6	M-6
ICM8	N-8
ICM10	N-10
ICM12	M-12
ICM13	M-13
ICM13	N-13
ICM14	M-14
ICN4	N-4
ICN5	N-6
ICN6	N-6
ICN8	N-8
ICN9	N-9
ICN11	N-11
ICN12	N-12
ICN14	N-14
ICP2	P-2
ICP3	P-3
ICP4	P-4
ICP5	P-5
ICP6	P-7
ICP8	P-8
ICP9	P-9
ICP11	P-11
ICP12	P-12
ICP13	P-13
ICP14	P-14
ICQ2	Q-2
ICQ3	Q-3
ICQ4	Q-4
ICQ8	Q-8
ICQ9	Q-9
ICQ12	Q-12
ICQ13	Q-13
ICQ14	Q-14
RB001	A-8
RB002	A-11
RB003	B-9
RB004	H-7
RB005	J-2
RB006	K-2
RB007	K-2
RB008	M-2
RB009	N-2
RB010	M-5
RB011	L-11
RB012	N-13
RB013	P-4
RB014	Q-2
RB015	Q-2
RB016	Q-3
RB017	Q-5
RB018	Q-14
RV001	M-10
SW001	A-5
SW002	A-6
SW003	A-9
SW004	A-9
SW005	A-10
SW006	A-12
SW007	M-5
TP001	A-6
TP002	A-6
TP003	A-9
TP004	A-11
TP005	A-11
TP006	B-4
TP007	C-7
TP008	D-9
TP009	D-7
TP010	D-9
TP011	E-9
TP012	D-14
TP013	F-9
TP014	G-2
TP015	G-3
TP016	H-4
TP017	H-4
TP018	G-7
TP019	J-4
TP020	J-4
TP021	J-4
TP022	K-3
TP023	K-9
TP024	K-10
TP025	L-7
TP026	L-14
TP027	M-11
TP028	Q-8
TP030	Q-10
TP031	Q-10
TP032	N-14
TP033	N-14
TP034	D-5
X001	A-13

CARD RACK TC-50 BOARD

TC-50 BOARD (1-627-114-12) S/N; 10301 AND HIGHER
Component Side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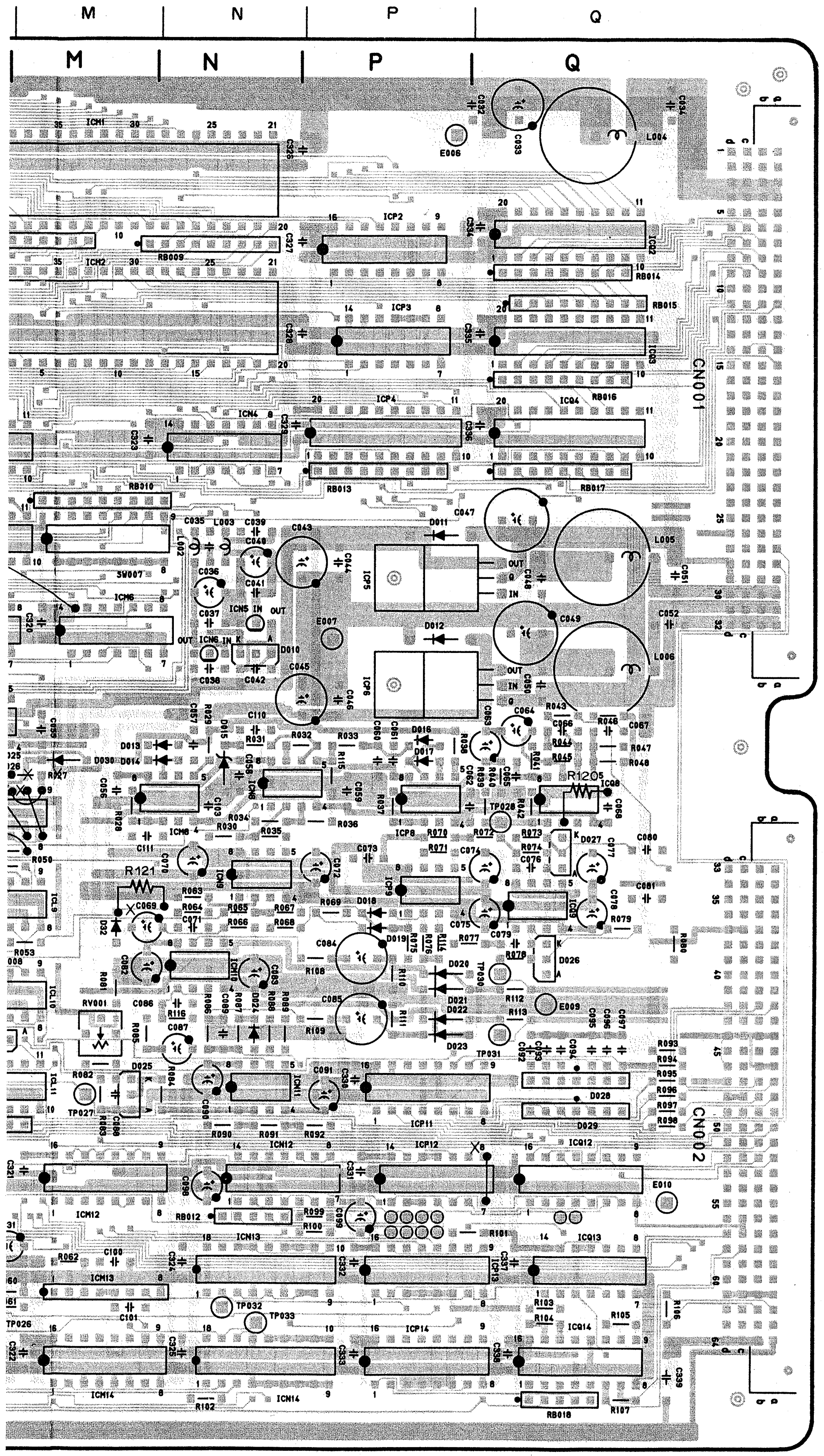
LOT.NO
DIP
SONY
MADE IN JAPAN
TC-50 1-627-114-12
REPRO LEVEL
EXT INPUT
SLAVE LOCK
TIME CODE FORMAT
PB REGEN REC

■ SOLDER SIDE PATTERN

CARD RACK TC-50 BOARD



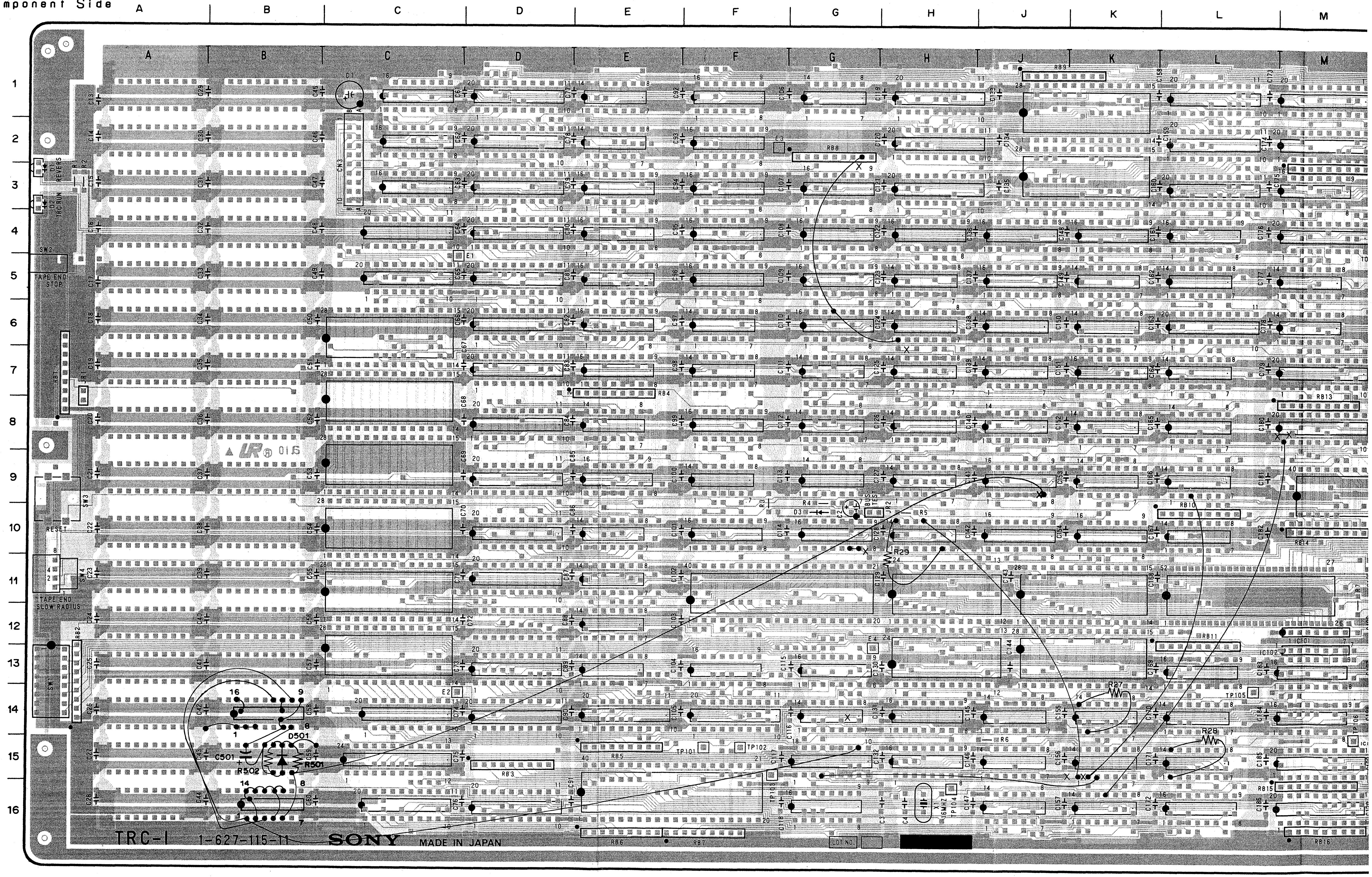
Applied Serial No. 10001 and higher	
Jumpers that have been cut.	R35 -×- D32 cathode
Parts that have been added.	R121

Applied Serial No. 10301 and higher	
Jumpers that have been soldered or cut.	ICL8-10 -×- ICL8-11 ICL8-11 -×- ICL8-12 ICL8-12 -×- ICL8-13 ICL8-13 -×- GND ICP12-8 -×- ICM6-3 ICA9-2 -×- ICB4-6 ICA9-12 -×- ICB7-6 ICB4-5 -×- ICB4-12 ICB4-11 -×- ICG5-6 ICB7-5 -×- ICB7-12 ICB7-11 -×- ICB4-11 ICF10-11 -×- ICF6-11 ICF10-11 -×- ICB8-4 ICF11-11 -×- ICB5-4 ICF4-1 — ICG3-2 ICF4-1 — ICM6-13 ICL8-9 — ICL8-11 ICL8-10 — ICL8-8 ICL8-12 — ICL8-7 ICL8-16 — ICL8-13 ICP12-8 — ICP12-7 (GND) D007 has been reversely installed against the electrode printed on the board. ICB4-2 — ICB4-12 ICB4-3 — ICB4-11 ICB5-2 — ICA9-2 ICB5-4 — ICF10-11 ICB7-2 — ICB7-12 ICB7-3 — ICB7-11 ICB8-4 — ICF11-11 ICB8-10 — ICA9-12 ICF11-11 — ICF6-11
Parts that have been added.	■ R120 ICQ8-2 — GND

CN001	Q-3
CN002	Q-12
D001	A-3
D002	A-4
D003	A-4
D004	A-5
D005	A-7
D006	A-11
D007	L-9
D008	L-9
D009	L-10
D010	N-6
D011	P-5
D012	P-6
D013	N-7
D014	N-7
D015	N-7
D016	P-7
D017	P-7
D018	P-9
D019	P-9
D020	P-10
D021	P-10
D022	P-10
D023	P-10
D024	N-10
D025	M-11
D026	Q-10
D027	Q-9
D028	Q-11
D029	Q-11
D030	M-7
D031	L-7
D032	M-9
E001	A-1
E002	A-7
E003	A-13
E004	D-1
E005	H-1
E006	P-1
E007	P-6
E008	H-14
E009	Q-10
E010	Q-12
E011	H-7
E012	D-7
E013	D-14
ICA2	A-2
ICA4	A-3
ICA5	A-5
ICA7	A-6
ICA8	A-8
ICA9	A-9
ICA10	A-10
ICA11	A-11
ICA12	A-12
ICA13	A-13
ICA14	A-14
ICB3	B-3
ICB4	B-4
ICB5	B-5
ICB6	B-6
ICB7	B-7
ICB8	B-8
ICB9	B-9
ICB10	B-10
ICB11	B-11
ICB12	B-12
ICB14	C-14
ICC3	C-3
ICC4	C-4
ICC6	C-6
ICC7	C-7
ICC8	C-8
ICC9	C-9
ICC10	C-10
ICC11	C-11
ICC12	C-12
ICD3	D-3
ICD4	D-4
ICD5	D-5
ICD6	D-6
ICD7	D-7
ICD8	D-8
ICD9	D-9
ICD10	D-10
ICD11	D-11
ICD12	D-12
ICD13	D-13
ICD14	D-14
ICE3	E-3
ICE4	E-4
ICE5	E-5
ICE6	E-6
ICE7	E-7
ICE8	E-8
ICE9	E-9
ICE10	E-10
ICE11	E-11
ICE12	E-12
ICE13	E-13
ICE14	E-14
ICF3	F-3
ICF4	F-4
ICF5	F-5
ICF6	F-6
ICF7	F-7
ICF8	F-8
ICF9	F-9
ICF10	F-10
ICF11	F-11
ICF12	F-12
ICF13	F-13
ICF14	F-14
ICG3	G-3
ICG4	G-4
ICG5	G-5
ICG6	G-6
ICG7	G-7
ICG8	G-8
ICG9	G-9
ICG10	G-10
ICG11	G-11
ICG12	G-12
ICG13	G-13
ICG14	G-14
ICH1	H-1
ICH3	H-3
ICH4	H-4
ICH6	H-5
ICH7	H-7
ICH8	H-8
ICH9	H-9
ICH10	H-10
ICH11	H-11
ICH12	H-12
ICH13	H-13
ICH14	H-14
ICJ3	J-3
ICJ4	J-4
ICJ5	J-5
ICJ6	J-6
ICJ7	J-7
ICJ8	J-8
ICJ9	J-9
ICJ11	J-11
ICJ12	J-12
ICJ14	J-14
ICK1	K-1
ICK3	K-3
ICK4	K-4
ICK5	K-5
ICK6	K-6
ICK7	K-7
ICK8	K-8
ICK9	K-9
ICK10	K-10
ICK11	K-11
ICK12	K-12
ICK13	K-13
ICK14	K-14
ICL4	L-4
ICL5	L-5
ICL6	L-6
ICL7	L-7
ICL8	L-8
ICL9	L-9
ICL10	L-10
ICL11	L-11
ICL12	L-12
ICL13	L-13
ICL14	L-14
ICM1	M-1
ICM2	M-3
ICM6	M-6
ICM8	N-8
ICM10	N-10
ICM12	M-12
ICM13	M-13
ICM14	M-14
ICN4	N-4
ICN5	N-6
ICN6	N-6
ICN8	N-8
ICN9	N-9
ICN11	N-11
ICN12	N-12
ICN13	N-13
ICN14	N-14
ICP2	P-2
ICP3	P-3
ICP4	P-4
ICP5	P-5
ICP6	P-7
ICP8	P-8
ICP9	P-9
ICP11	P-11
ICP12	P-12
ICP13	P-13
ICP14	P-14
ICQ2	Q-2
ICQ3	Q-3
ICQ4	Q-4
ICQ8	Q-8
ICQ9	Q-9
ICQ12	Q-12
ICQ13	Q-13
ICQ14	Q-14
RB001	A-8
RB002	A-11
RB003	B-9
RB004	H-7
RB005	J-2
RB006	K-2
RB007	K-2
RB008	M-2
RB009	N-2
RB010	M-5
RB011	L-11
RB012	N-12
RB013	P-4
RB014	Q-2
RB015	Q-2
RB016	Q-3
RB017	Q-4
RB018	Q-14
RV001	M-10
SW001	A-5
SW002	A-6
SW003	A-9
SW004	A-9
SW005	A-10
SW006	A-12
SW007	M-5
TP001	A-6
TP002	A-6
TP003	A-9
TP004	A-11
TP005	A-11
TP006	B-4
TP007	C-7
TP008	D-9
TP009	D-7
TP010	D-9
TP011	E-9
TP013	F-9
TP014	G-2
TP015	G-3
TP016	H-4
TP017	H-4
TP018	G-7
TP019	J-4
TP020	J-4
TP021	J-4
TP022	K-3
TP023	K-9
TP024	K-10
TP025	L-7
TP026	L-14
TP027	M-11
TP028	Q-8
TP030	Q-10
TP031	Q-10
TP032	N-14
TP033	N-14
TP034	D-5
X001	A-13

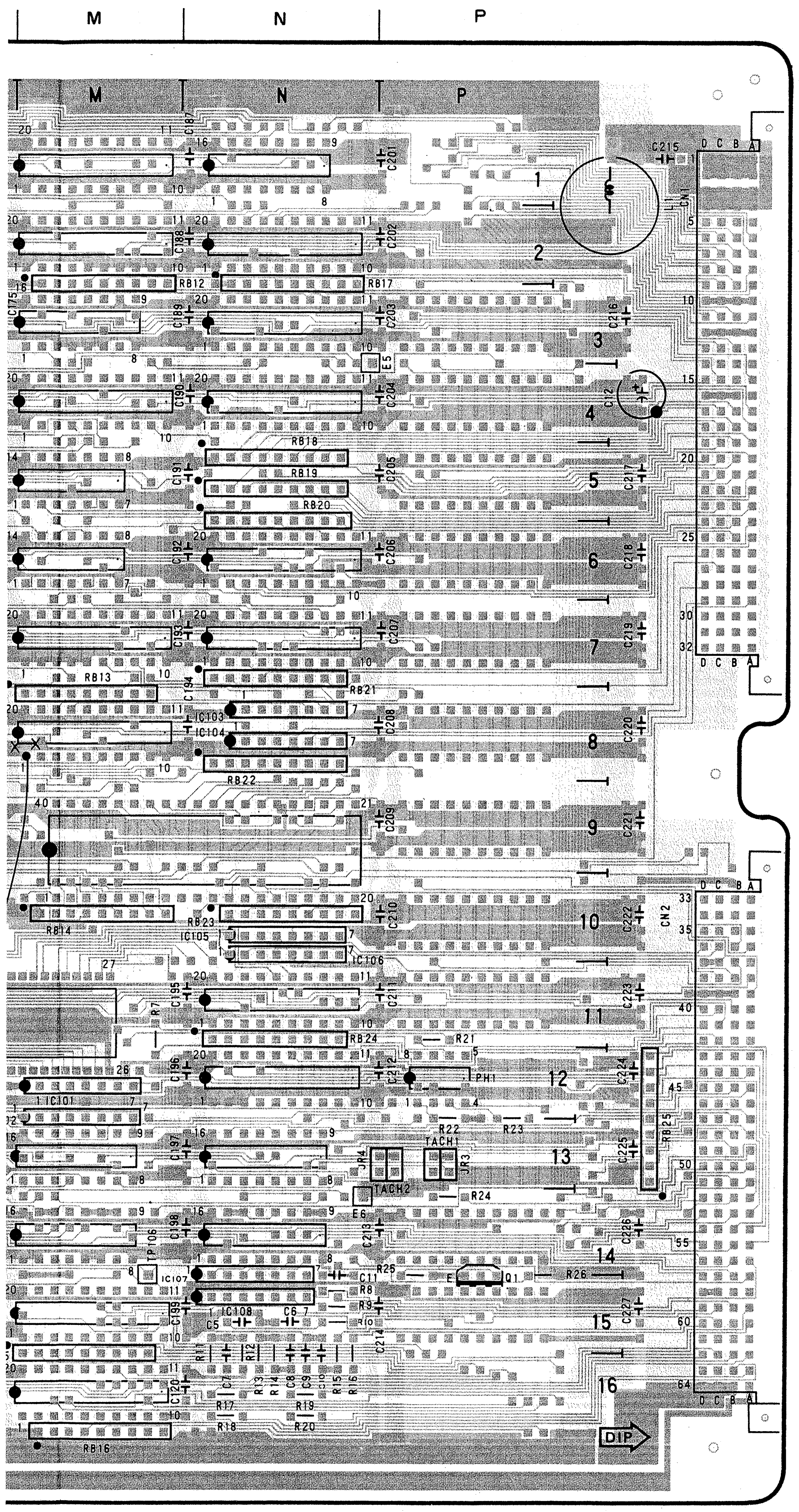
TRC-1 BOARD (1-627-115-11) S/N: 10001 AND HIGHER

Component Side


A
B
C
D
E
F
G
H
J
K
L
M
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
D1 REVERS
D2 TRC RUN
SW2
TAPE END STOP
RB1
JR1
SW3
RESET
SW4
TAPE END SLOW RADIUS
RB2
SW1
CN3
C1
E1
E2
E3
E4
RB3
RB4
RB5
RB6
RB7
RB8
RB9
RB10
RB11
RB13
RB14
RB15
RB16
R3
R4
D3
R5
R6
R27
R28
R29
TEST
TP101
TP102
TP103
TP104
TP105
16MHz
IC101
IC102
D501
C501
R501
R502
TRC-I
1-627-115-11
SONY
MADE IN JAPAN
LOT NO.

■ SOLDER SIDE PATTERN

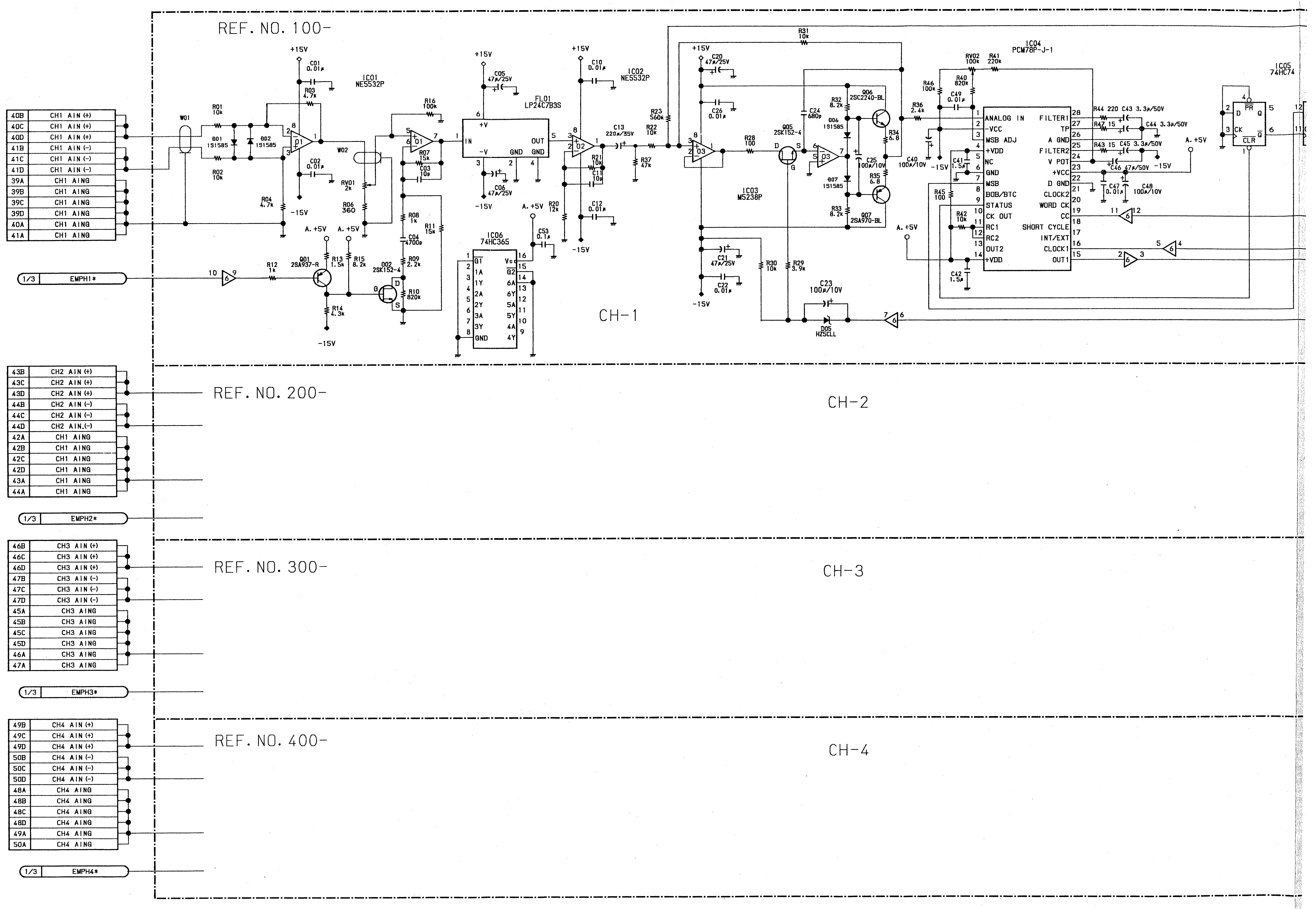
CARD RACK TRC-1 BOARD



Applied Serial No. 10001 and higher	
Jumpers that have been soldered or cut.	ICG10-7 -×- ICL10-4 ICH6-1 -×- ICH5-2 ICK15-1 -×- GND ICK15-2 -×- ICK15-1 ICM8-1 -×- GND RB8-8 -×- ICG5-10 ICG6-13 — ICH6-1 ICG6-13 — RB8-8 ICG15-4 — ICH10-11 ICK15-1 — ICH10-11 ICK15-2 — ICL9-3 ICK15-3 — ICG15-4 ICM8-1 — ICK16-11
Parts marked with ■ that have been installed on the solder side.	■ R27 ICK14-2 — +5 V ■ R28 ICL15-1 — +5 V ■ R29 ICH10-6 — +5 V

Applied Serial No. 10001 and higher	
Jumpers that have been soldered or cut.	ICG10-7 -×- ICL10-4 ICH6-1 -×- ICH5-2 ICK15-1 -×- GND ICK15-2 -×- ICK15-1 ICM8-1 -×- GND RB8-8 -×- ICG5-10 ICJ9-6 -×- ICJ9-7 ICG6-13 — ICH6-1 ICG6-13 — RB8-8 ICG15-4 — ICH10-11 ICK15-1 — ICH10-11 ICK15-2 — ICL9-3 ICK15-3 — ICG15-4 ICM8-1 — ICK16-11 C59 — D501 C59 — R501 C59 — R502 C501 ⊕ ┬ D501 └ R502 ICB14-1 — ICB14-2 ICB14-2 — ICB14-3 ICB14-3 — GND ICB14-6 — C501 ⊖ ICB14-6 — GND ICB14-7 — C501 ⊕ ICB14-9 — GND ICB14-10 — ICB16-1 ICB14-11 — +5 V ICB14-12 — ICB16-3 ICB14-16 — +5 V ICB16-1 — ICG15-11 ICB16-2 — +5 V ICB16-4 — ICB16-11 ICB16-5 — R501 ICB16-10 — ICB16-11 ICB16-11 — ICB16-12 ICB16-12 — ICB16-13 ICB16-13 — ICB16-14 ICB16-14 — +5 V R501 — ICJ9-7
Parts marked with ■ that have been installed on the solder side.	■ R27 ICK14-2 — +5 V ■ R28 ICL15-1 — +5 V ■ R29 ICH10-6 — +5 V
Parts that have been added.	■ C501 ■ D501 ■ ICB14 ■ ICB16 ■ R501 ■ R502

CN1	P-1
CN2	P-10
CN3	C-2
D1	A-2
D2	A-3
D3	G-10
D501	B-15
E1	C-4
E2	C-14
E3	F-2
E4	G-13
E5	N-3
E6	N-14
IC101	M-12
IC102	M-12
IC103	N-8
IC104	N-8
IC105	N-10
IC106	N-10
IC107	N-15
IC108	N-15
ICB14	B-14
ICB16	B-16
ICC1	C-1
ICC2	C-2
ICC3	C-3
ICC4	C-4
ICC5	C-5
ICC6	C-6
ICC8	C-8
ICC9	C-9
ICC10	C-10
ICC11	C-11
ICC13	C-13
ICC14	C-14
ICC15	C-15
ICC16	C-16
ICD1	D-1
ICD2	D-2
ICD3	D-3
ICD4	D-4
ICD5	D-5
ICD6	D-6
ICD7	D-7
ICD8	D-8
ICD9	D-9
ICD10	D-10
ICD11	D-11
ICD13	D-13
ICD14	D-14
ICD15	D-15
ICD16	D-16
ICE1	E-1
ICE2	E-2
ICE3	E-3
ICE4	E-4
ICE5	E-5
ICE6	E-6
ICE7	E-7
ICE8	E-8
ICE9	E-9
ICE10	E-10
ICE11	E-11
ICE12	E-12
ICE13	E-13
ICE14	E-14
ICE16	E-16
ICF1	F-1
ICF2	F-2
ICF3	F-3
ICF4	F-4
ICF5	F-5
ICF6	F-6
ICF7	F-7
ICF8	F-8
ICF9	F-10
ICF10	F-11
ICF11	F-13
ICF13	F-14
ICF14	F-14
ICG1	G-1
ICG3	G-3
ICG4	G-4
ICG5	G-5
ICG6	G-6
ICG7	G-7
ICG8	G-8
ICG9	G-9
ICG10	G-10
ICG13	G-13
ICG14	G-14
ICG15	G-15
ICG16	G-16
ICH1	H-1
ICH2	H-2
ICH3	H-3
ICH4	H-4
ICH5	H-5
ICH6	H-6
ICH7	H-7
ICH8	H-8
ICH9	H-9
ICH10	H-10
ICH11	H-11
ICH13	H-13
ICH14	H-14
ICH15	H-15
ICJ4	J-4
ICJ5	J-5
ICJ6	J-6
ICJ7	J-7
ICJ8	J-8
ICJ9	J-9
ICJ10	J-10
ICJ14	J-14
ICJ15	J-15
ICJ16	J-16
ICK1	K-1
ICK3	K-3
ICK4	K-4
ICK5	K-5
ICK6	K-6
ICK7	K-7
ICK8	K-8
ICK9	K-9
ICK10	K-10
ICK11	K-11
ICK13	K-13
ICK14	K-14
ICK15	K-15
ICK16	K-16
ICL1	L-1
ICL2	L-2
ICL3	L-3
ICL4	L-4
ICL5	L-5
ICL6	L-6
ICL7	L-7
ICL8	L-8
ICL9	L-9
ICL10	L-10
ICL11	L-11
ICL13	L-12
ICL14	L-13
ICL15	L-15
ICL16	L-16
ICM1	M-1
ICM2	M-2
ICM3	M-3
ICM4	M-4
ICM5	M-5
ICM6	M-6
ICM7	M-7
ICM8	M-8
ICM13	M-13
ICM14	M-14
ICM15	M-15
ICM16	M-16
ICN1	N-1
ICN2	N-2
ICN3	N-3
ICN4	N-4
ICN6	N-5
ICN7	N-6
ICN9	N-9
ICN10	N-10
ICN11	N-11
ICN12	N-12
ICN13	N-13
ICN14	N-14
PH1	P-12
RB1	A-7
RB2	A-13
RB3	D-15
RB4	E-7
RB5	E-15
RB6	E-16
RB7	F-16
RB8	G-2
RB9	J-1
RB10	L-10
RB11	L-12
RB12	M-2
RB13	M-8
RB14	M-10
RB15	M-15
RB16	M-16
RB17	N-2
RB18	N-5
RB19	N-5
RB20	N-5
RB21	N-7
RB22	N-8
RB23	N-10
RB24	N-11
RB25	P-13
SW1	A-13
SW2	A-5
SW3	A-9
SW4	A-11
TP101	F-15
TP102	F-15
TP103	F-15
TP104	H-16
TP105	L-13
TP106	M-14
X1	H-16

REF. NO. 100-
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REF. NO. 300-
REF. NO. 400-
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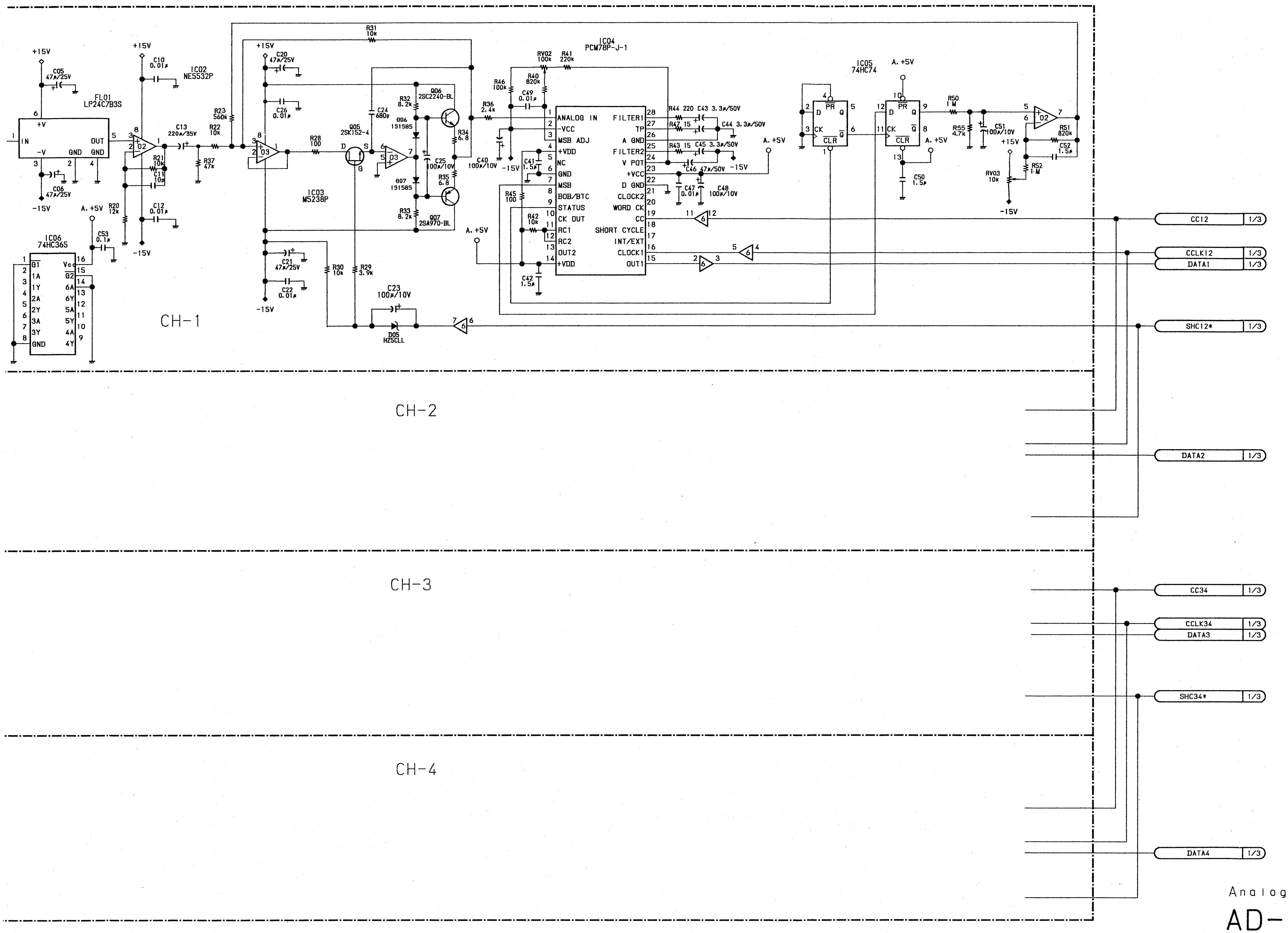
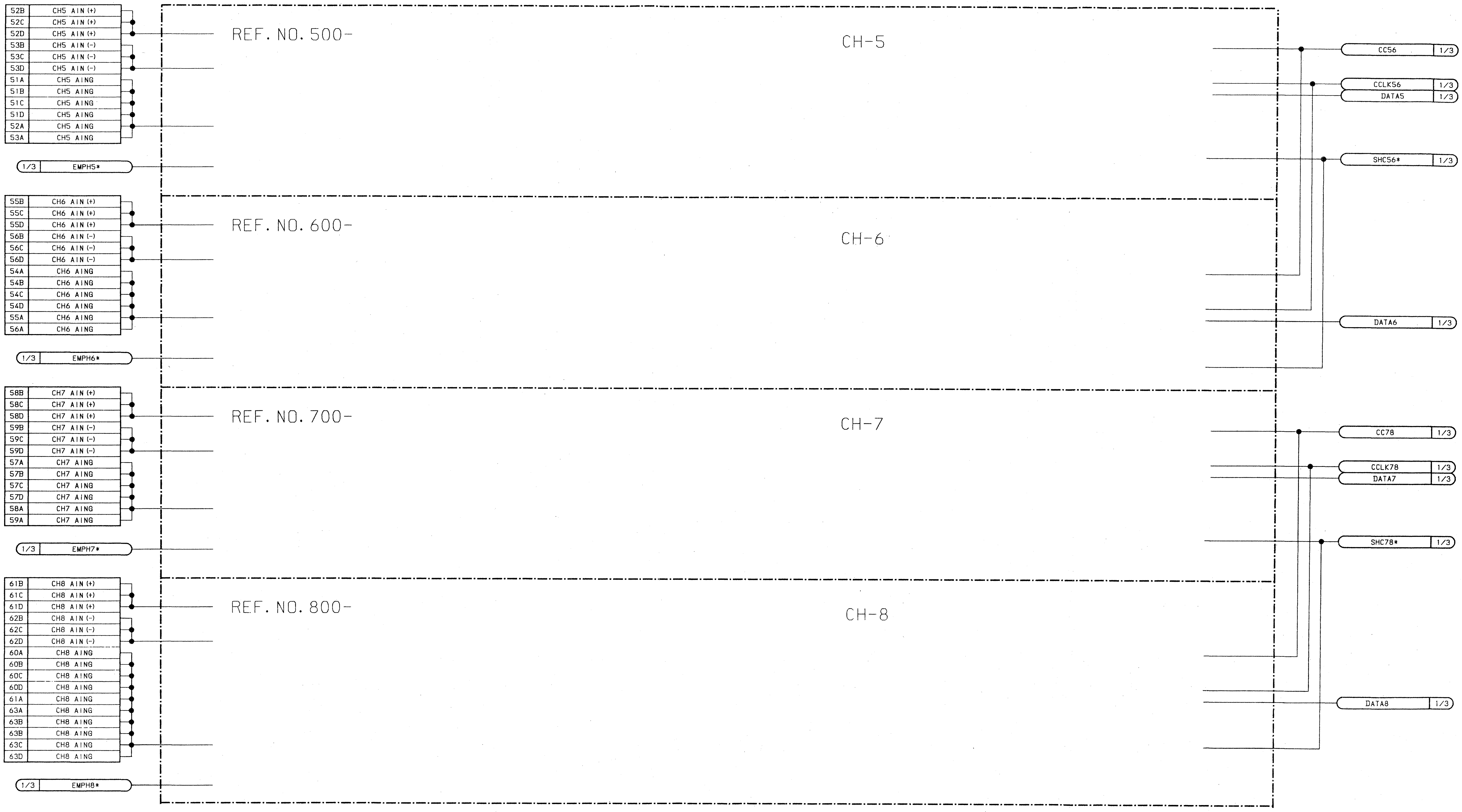
CH-2
CH-3
CH-4
40B CH1 AIN (+)
40C CH1 AIN (+)
40D CH1 AIN (+)
41B CH1 AIN (-)
41C CH1 AIN (-)
41D CH1 AIN (-)
39A CH1 AING
39B CH1 AING
39C CH1 AING
39D CH1 AING
40A CH1 AING
41A CH1 AING
1/3 EMPH1*
43B CH2 AIN (+)
43C CH2 AIN (+)
43D CH2 AIN (+)
44B CH2 AIN (-)
44C CH2 AIN (-)
44D CH2 AIN (-)
42A CH1 AING
42B CH1 AING
42C CH1 AING
42D CH1 AING
43A CH1 AING
44A CH1 AING
1/3 EMPH2*
46B CH3 AIN (+)
46C CH3 AIN (+)
46D CH3 AIN (+)
47B CH3 AIN (-)
47C CH3 AIN (-)
47D CH3 AIN (-)
45A CH3 AING
45B CH3 AING
45C CH3 AING
45D CH3 AING
46A CH3 AING
47A CH3 AING
1/3 EMPH3*
49B CH4 AIN (+)
49C CH4 AIN (+)
49D CH4 AIN (+)
50B CH4 AIN (-)
50C CH4 AIN (-)
50D CH4 AIN (-)
48A CH4 AING
48B CH4 AING
48C CH4 AING
48D CH4 AING
49A CH4 AING
50A CH4 AING
1/3 EMPH4*
+15V
-15V
A. +5V
IC01 NE5532P
C01 0.01μ
R03 4.7k
R01 10k
R02 10k
D01 1S1585
D02 1S1585
W01
W02
R04 4.7k
C02 0.01μ
RV01 2k
R06 360
R16 100k
R07 15k
C03 10p
R08 1k
C04 4700p
R09 2.2k
R10 820k
R11 15k
Q01 2SA937-R
Q02 2SK152-4
R12 1k
R13 1.5k
R14 4.3k
R15 8.2k
FL01 LP24C7B3S
C05 47μ/25V
C06 47μ/25V
IN
OUT
-V
+V
GND
IC06 74HC365
G1
G2
1A
1Y
2A
2Y
3A
3Y
4A
4Y
5A
5Y
6A
6Y
Vcc
GND
C53 0.1μ
IC02 NE5532P
C10 0.01μ
C11 10p
C12 0.01μ
R20 12k
R21 10k
C13 220μ/35V
R22 10k
R23 560k
R37 47k
R31 10k
IC03 M5238P
C20 47μ/25V
C26 0.01μ
C21 47μ/25V
C22 0.01μ
R28 100
R30 10k
R29 3.9k
Q05 2SK152-4
C24 680p
R32 8.2k
Q06 2SC2240-BL
D06 1S1585
D07 1S1585
Q07 2SA970-BL
R33 8.2k
R34 6.8
R35 6.8
C25 100μ/10V
C23 100μ/10V
D05 HZ5CLL
IC04 PCM78P-J-1
RV02 100k
R41 220k
R46 100k
R40 820k
C49 0.01μ
R36 2.4k
C40 100μ/10V
C41 1.5μ
C42 1.5μ
R45 100
R42 10k
ANALOG IN
-VCC
MSB ADJ
+VDD
NC
GND
MSB
BOB/BTC
STATUS
CK OUT
RC1
RC2
OUT2
+VDD
FILTER1
TP
A GND
FILTER2
V POT
+VCC
D GND
CLOCK2
WORD CK
CC
SHORT CYCLE
INT/EXT
CLOCK1
OUT1
R44 220
C43 3.3μ/50V
R47 15
C44 3.3μ/50V
R43 15
C45 3.3μ/50V
C46 47μ/50V
C47 0.01μ
C48 100μ/10V
IC05 74HC74
PR
CLR
CK
D
Q


CH-1
CH-2
CH-3
CH-4
FL01 LP24C7B3S
IC02 NE5532P
IC03 M5238P
IC04 PCM78P-J-1
IC05 74HC74
IC06 74HC365
Q05 2SK152-4
Q06 2SC2240-BL
Q07 2SA970-BL
D05 HZ5CLL
+15V
-15V
A. +5V
ANALOG IN
-VCC
MSB ADJ
+VDD
NC
GND
MSB
BOB/BTC
STATUS
CK OUT
RC1
RC2
OUT2
FILTER1
TP
A GND
FILTER2
V POT
+VCC
D GND
CLOCK2
WORD CK
CC
SHORT CYCLE
INT/EXT
CLOCK1
OUT1
CC12 1/3
CCLK12 1/3
DATA1 1/3
SHC12* 1/3
DATA2 1/3
CC34 1/3
CCLK34 1/3
DATA3 1/3
SHC34* 1/3
DATA4 1/3

Analog to Digital

AD-36 BOARD (2/3)

BOARD NO.1-625-487-12 & HIGHER
PCM-3348


52B CH5 AIN (+)
52C CH5 AIN (+)
52D CH5 AIN (+)
53B CH5 AIN (-)
53C CH5 AIN (-)
53D CH5 AIN (-)
51A CH5 AING
51B CH5 AING
51C CH5 AING
51D CH5 AING
52A CH5 AING
53A CH5 AING
1/3 EMPH5*
REF. NO. 500-
CH-5
CC56 1/3
CCLK56 1/3
DATA5 1/3
SHC56* 1/3
55B CH6 AIN (+)
55C CH6 AIN (+)
55D CH6 AIN (+)
56B CH6 AIN (-)
56C CH6 AIN (-)
56D CH6 AIN (-)
54A CH6 AING
54B CH6 AING
54C CH6 AING
54D CH6 AING
55A CH6 AING
56A CH6 AING
1/3 EMPH6*
REF. NO. 600-
CH-6
DATA6 1/3
58B CH7 AIN (+)
58C CH7 AIN (+)
58D CH7 AIN (+)
59B CH7 AIN (-)
59C CH7 AIN (-)
59D CH7 AIN (-)
57A CH7 AING
57B CH7 AING
57C CH7 AING
57D CH7 AING
58A CH7 AING
59A CH7 AING
1/3 EMPH7*
REF. NO. 700-
CH-7
CC78 1/3
CCLK78 1/3
DATA7 1/3
SHC78* 1/3
61B CH8 AIN (+)
61C CH8 AIN (+)
61D CH8 AIN (+)
62B CH8 AIN (-)
62C CH8 AIN (-)
62D CH8 AIN (-)
60A CH8 AING
60B CH8 AING
60C CH8 AING
60D CH8 AING
61A CH8 AING
63A CH8 AING
63B CH8 AING
63B CH8 AING
63C CH8 AING
63D CH8 AING
1/3 EMPH8*
REF. NO. 800-
CH-8
DATA8 1/3

Analog to Digital

AD-36 BOARD (3/3)

BOARD NO.1-625-487-12 & HIGHER
PCM-3348

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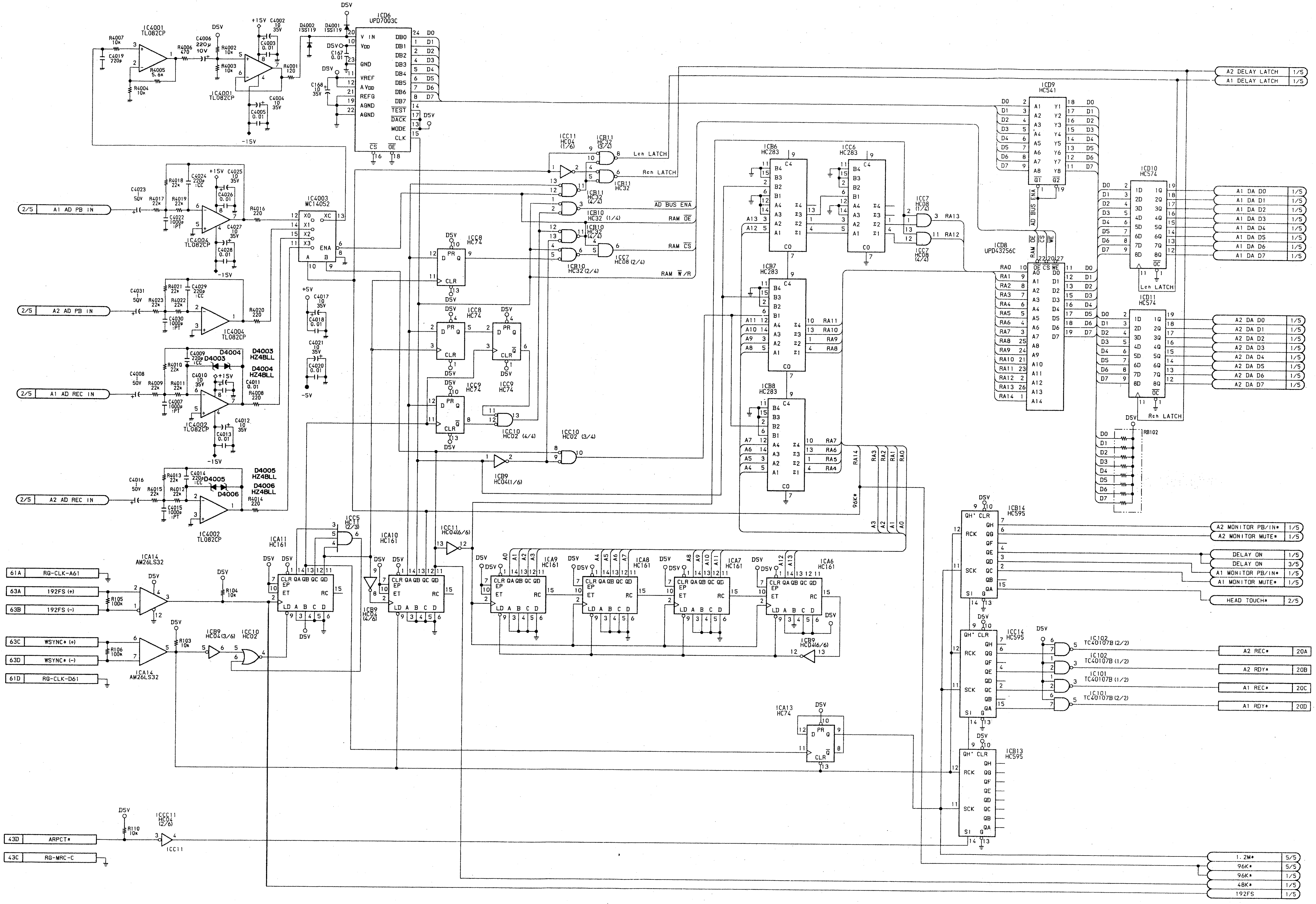
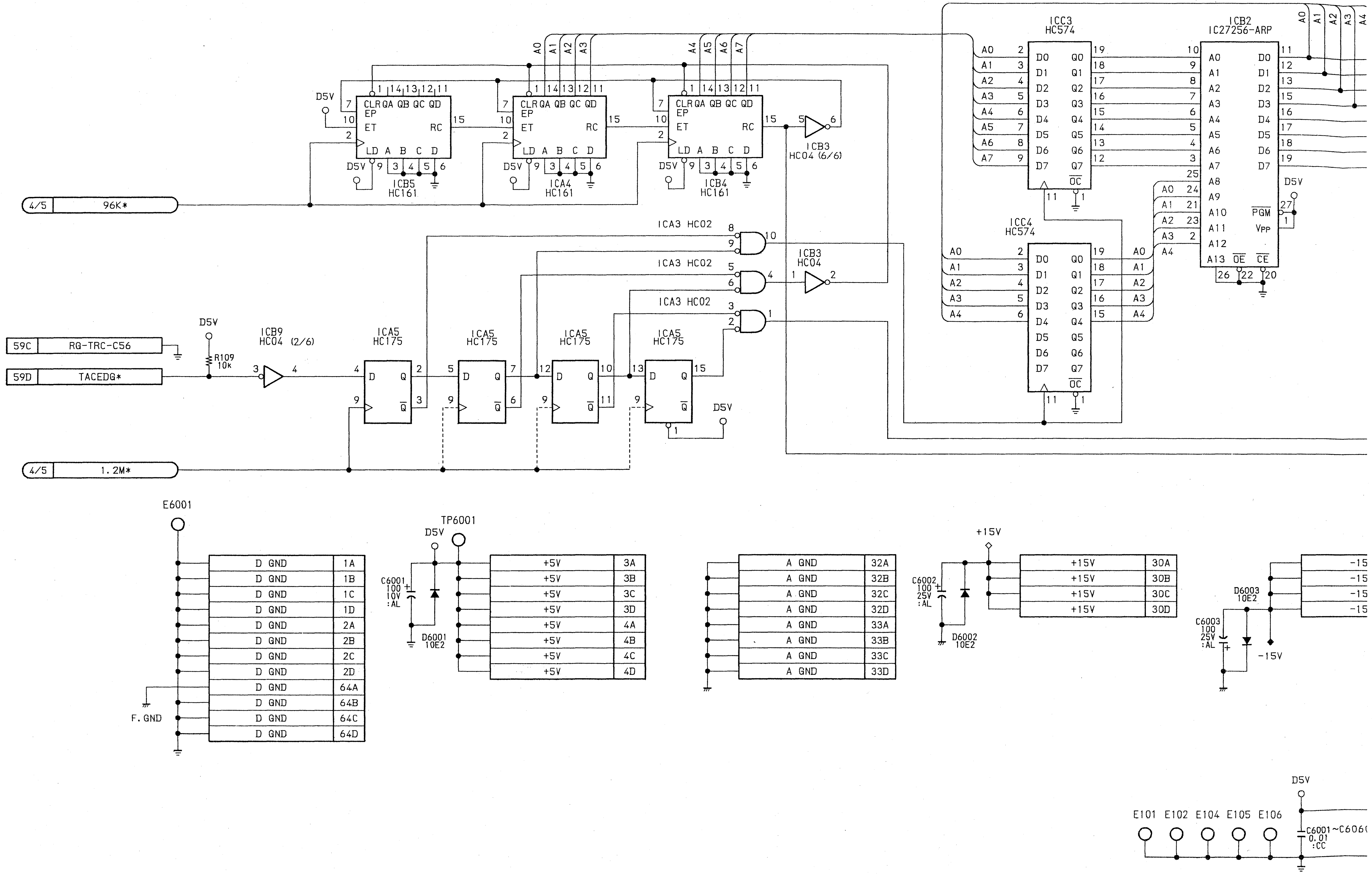
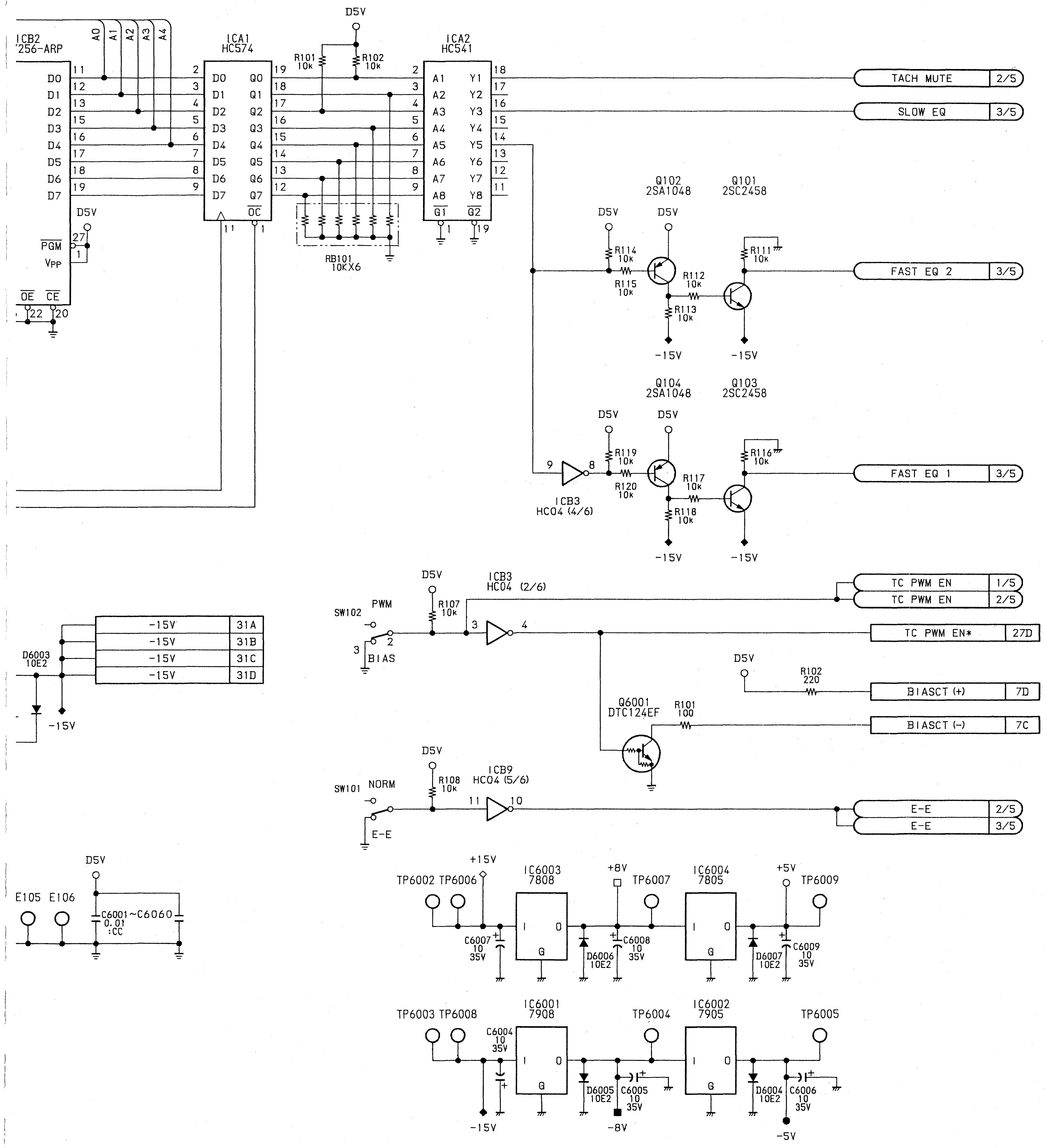

2/5 A1 AD PB IN
2/5 A2 AD PB IN
2/5 A1 AD REC IN
2/5 A2 AD REC IN
61A RG-CLK-A61
63A 192FS (+)
63B 192FS (-)
63C WSYNC* (+)
63D WSYNC* (-)
61D RG-CLK-D61
43D ARPCT*
43C RG-MRC-C
IC4001 TL082CP
IC4004 TL082CP
IC4002 TL082CP
IC4003 MC14052
ICD6 UPD7003C
ICD9 HC541
ICD8 UPD43256C
ICD10 HC574
ICD11 HC574
ICB6 HC283
ICC6 HC283
ICB7 HC283
ICB8 HC283
ICA11 HC161
ICA10 HC161
ICA9 HC161
ICA8 HC161
ICA7 HC161
ICA6 HC161
ICA14 AM26LS32
ICA13 HC74
ICB14 HC595
ICC14 HC595
ICB13 HC595
IC101 TC40107B
IC102 TC40107B
D4003 HZ4BLL
D4004 HZ4BLL
D4005 HZ4BLL
D4006 HZ4BLL
Lch LATCH
Rch LATCH
AD BUS ENA
RAM OE
RAM CS
RAM W/R
A2 DELAY LATCH 1/5
A1 DELAY LATCH 1/5
A1 DA D0 1/5
A1 DA D1 1/5
A1 DA D2 1/5
A1 DA D3 1/5
A1 DA D4 1/5
A1 DA D5 1/5
A1 DA D6 1/5
A1 DA D7 1/5
A2 DA D0 1/5
A2 DA D1 1/5
A2 DA D2 1/5
A2 DA D3 1/5
A2 DA D4 1/5
A2 DA D5 1/5
A2 DA D6 1/5
A2 DA D7 1/5
A2 MONITOR PB/IN* 1/5
A2 MONITOR MUTE* 1/5
DELAY ON 1/5
DELAY ON 3/5
A1 MONITOR PB/IN* 1/5
A1 MONITOR MUTE* 1/5
HEAD TOUCH* 2/5
A2 REC* 20A
A2 RDY* 20B
A1 REC* 20C
A1 RDY* 20D
1.2M* 5/5
96K* 5/5
96K* 1/5
48K* 1/5
192FS 1/5
RB102
-15V
+15V
D5V
-5V
+5V

Analog Rec/Playback Amplifier

ARP-2 BOARD (4/5)

BOARD NO.1-627-107-11 & HIGHER
PCM-3348

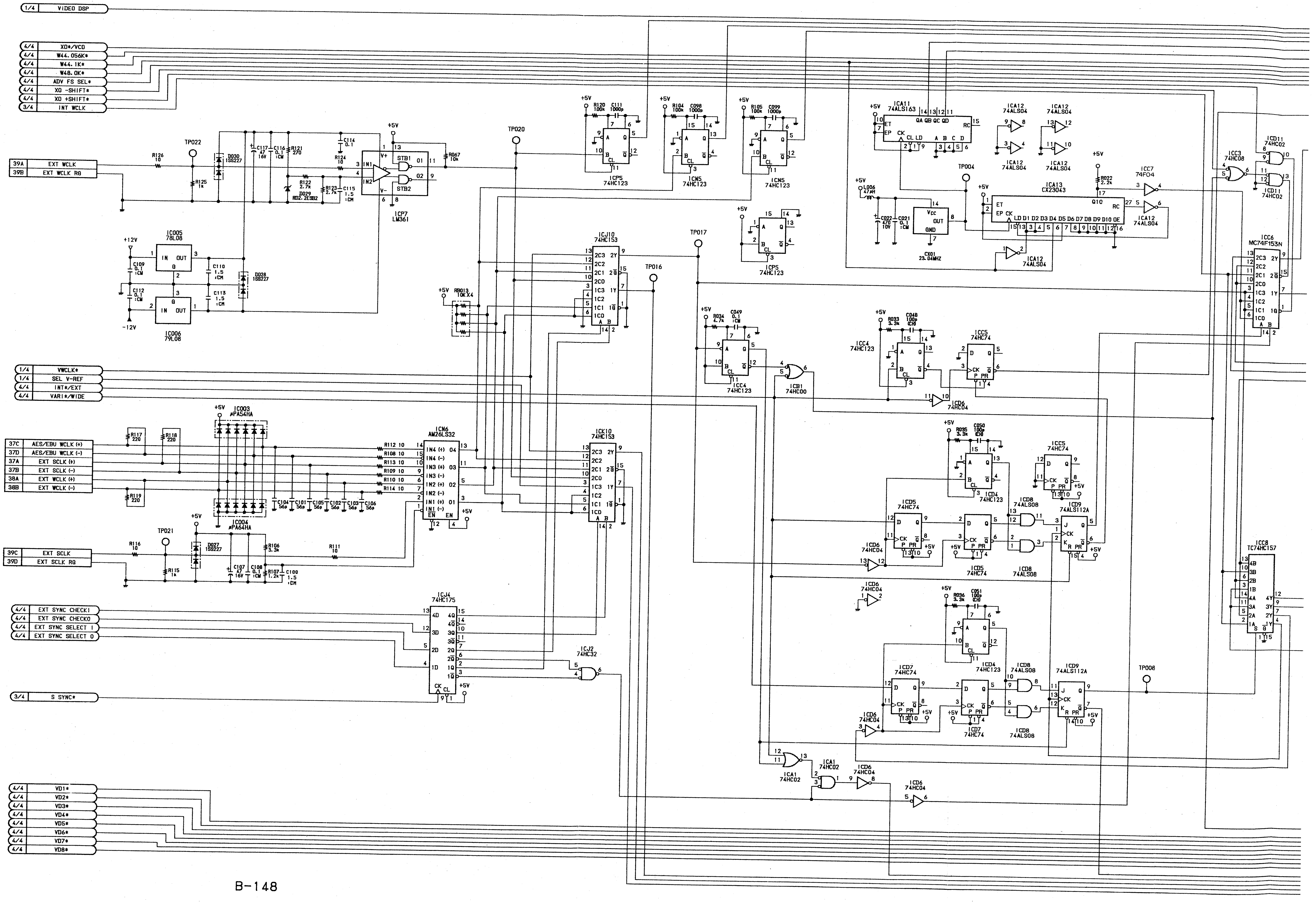

ICB5 HC161
ICA4 HC161
ICB4 HC161
ICB3 HC04 (6/6)
ICC3 HC574
ICC4 HC574
ICB2 IC27256-ARP
ICA3 HC02
ICB3 HC04
ICB9 HC04 (2/6)
ICA5 HC175
R109 10k
D5V
4/5 96K*
4/5 1.2M*
59C RG-TRC-C56
59D TACEDG*
E6001
TP6001
F.GND
+15V
-15V
C6001 100 10V :AL
D6001 10E2
C6002 100 25V :AL
D6002 10E2
C6003 100 25V :AL
D6003 10E2
D GND 1A
D GND 1B
D GND 1C
D GND 1D
D GND 2A
D GND 2B
D GND 2C
D GND 2D
D GND 64A
D GND 64B
D GND 64C
D GND 64D
+5V 3A
+5V 3B
+5V 3C
+5V 3D
+5V 4A
+5V 4B
+5V 4C
+5V 4D
A GND 32A
A GND 32B
A GND 32C
A GND 32D
A GND 33A
A GND 33B
A GND 33C
A GND 33D
+15V 30A
+15V 30B
+15V 30C
+15V 30D
E101 E102 E104 E105 E106
C6001~C606
0.01 :CC


ICB2
'256-ARP
A0
A1
A2
A3
A4
D5V
ICA1
HC574
R101
10k
R102
10k
ICA2
HC541
RB101
10KX6
D0
D1
D2
D3
D4
D5
D6
D7
PGM
VPP
OE
CE
Q0
Q1
Q2
Q3
Q4
Q5
Q6
Q7
OC
A1
A2
A3
A4
A5
A6
A7
A8
G1
G2
Y1
Y2
Y3
Y4
Y5
Y6
Y7
Y8
TACH MUTE
2/5
SLOW EQ
3/5
Q102
2SA1048
Q101
2SC2458
R114
10k
R115
10k
R112
10k
R113
10k
R111
10k
FAST EQ 2
3/5
-15V
Q104
2SA1048
Q103
2SC2458
R119
10k
R120
10k
R117
10k
R118
10k
R116
10k
ICB3
HC04 (4/6)
FAST EQ 1
3/5
ICB3
HC04 (2/6)
SW102
PWM
BIAS
R107
10k
TC PWM EN
1/5
TC PWM EN
2/5
TC PWM EN*
27D
R102
220
BIASCT (+)
7D
Q6001
DTC124EF
R101
100
BIASCT (-)
7C
-15V
31A
31B
31C
31D
D6003
10E2
SW101
NORM
E-E
R108
10k
ICB9
HC04 (5/6)
E-E
2/5
E-E
3/5
E105
E106
C6001~C6060
0.01
:CC
+15V
TP6002
TP6006
IC6003
7808
+8V
TP6007
IC6004
7805
+5V
TP6009
C6007
10
35V
D6006
10E2
C6008
10
35V
D6007
10E2
C6009
10
35V
TP6003
TP6008
IC6001
7908
TP6004
IC6002
7905
TP6005
C6004
10
35V
D6005
10E2
C6005
10
35V
D6004
10E2
C6006
10
35V
-15V
-8V
-5V
I
O
G

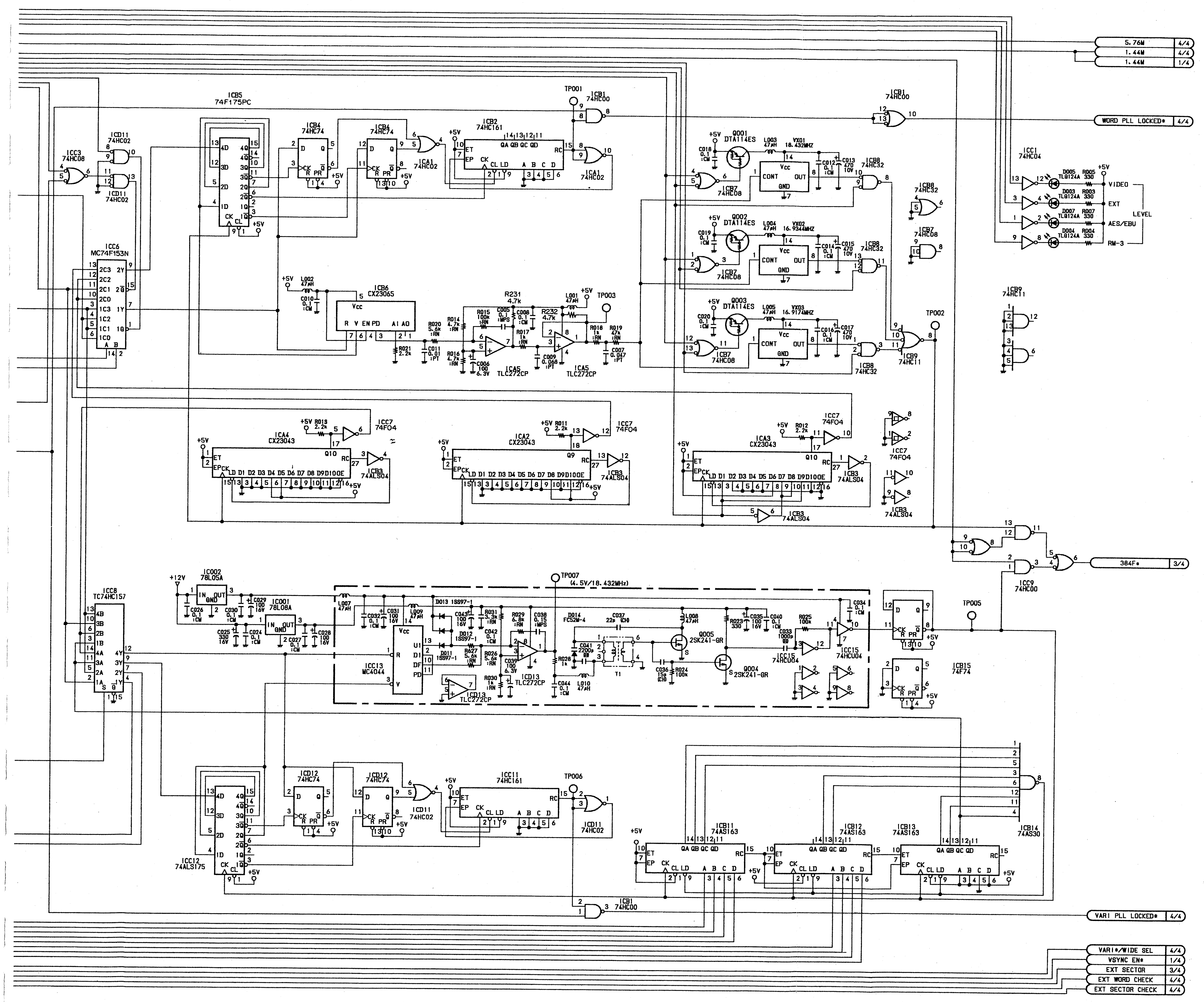
Analog Rec/Playback Amplifier

ARP-2 BOARD (5/5)

BOARD NO.1-627-107-11 & HIGHER
PCM-3348



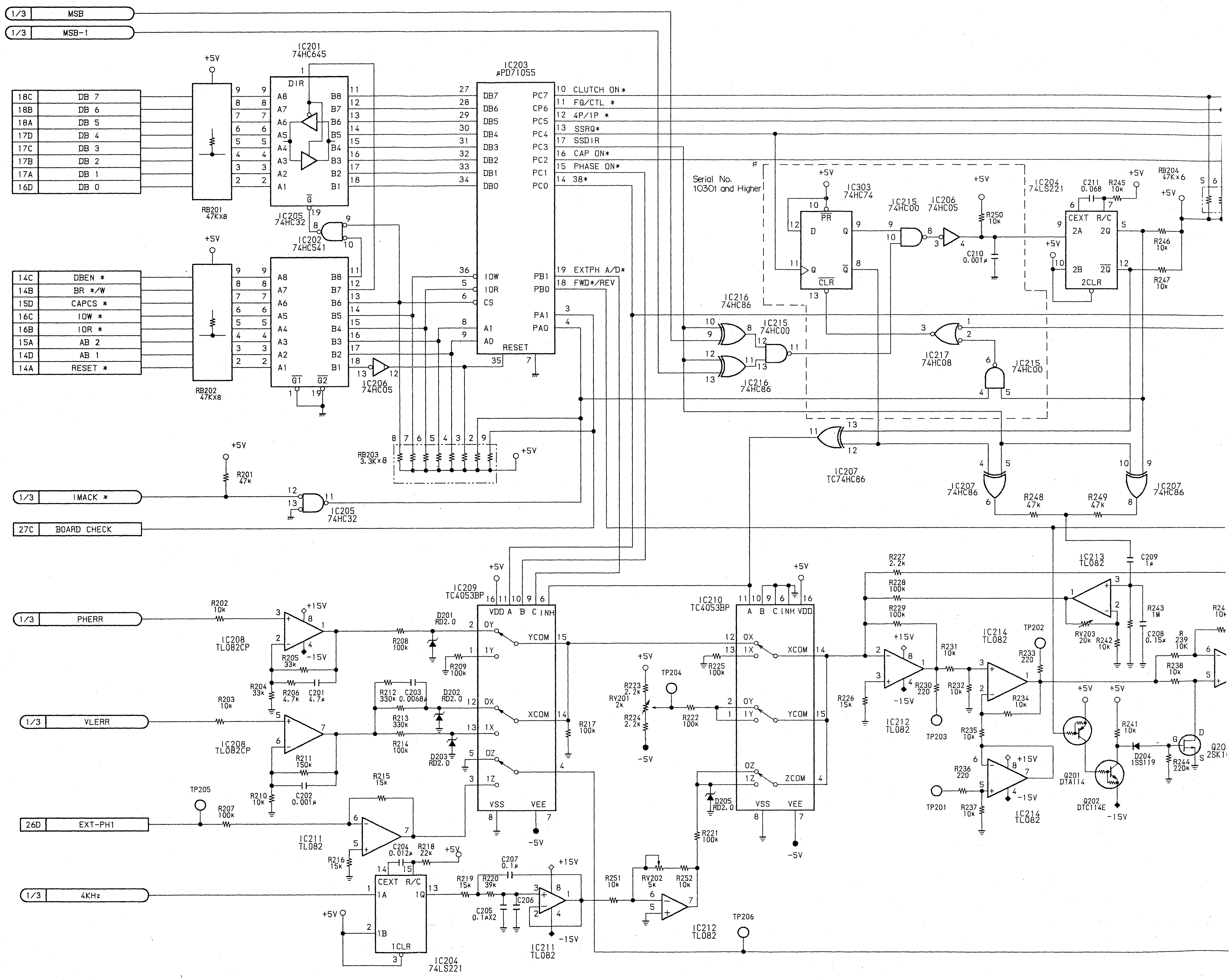
1/4 VIDEO DSP
4/4 XO*/VCO
4/4 W44.056K*
4/4 W44.1K*
4/4 W48.0K*
4/4 ADV FS SEL*
4/4 XO -SHIFT*
4/4 XO +SHIFT*
3/4 INT WCLK
39A EXT WCLK
39B EXT WCLK RG
R126 10
TP022
R125 1k
D030 1SS227
C117 47 16V
C116 0.1 :CM
R121 270
C114 0.1
R124 10
R122 2.7k
D029 RD2.2ESB2
R123 2.7k
C115 1.5 :CM
+5V
ICP7 LM361
STB1
STB2
R067 10k
TP020
+12V
IC005 78L08
IN OUT G
C109 0.1 :CM
C110 1.5 :CM
D028 1SS227
C112 0.1 :CM
C113 1.5 :CM
IC006 79L08
-12V
+5V RB013 10K X4
ICJ10 74HC153
TP016
TP017
+5V R120 100k C111 1000p
ICP5 74HC123
+5V R104 100k C098 1000p
ICN5 74HC123
+5V R105 100k C099 1000p
ICN5 74HC123
ICP5 74HC123
ICA11 74ALS163
QA QB QC QD
ET EP CK CL LD A B C D RC
ICA12 74ALS04
TP004
+5V L006 47μH
C022 470 10V
C021 0.1 :CM
CX01 23.04MHz
Vcc OUT GND
ICA13 CX23043
ET EP CK LD D1 D2 D3 D4 D5 D6 D7 D8 D9 D10 OE Q10 RC
R022 2.2k
ICC7 74F04
ICA12 74ALS04
ICD11 74HC02
ICC3 74HC08
ICC6 MC74F153N
1/4 VWCLK*
1/4 SEL V-REF
4/4 INT*/EXT
4/4 VARI*/WIDE
+5V R034 4.7k C049 0.1 :CM
ICC4 74HC123
ICB1 74HC00
+5V R033 3.3k C048 100p (CH)
ICC4 74HC123
ICC5 74HC74
ICD6 74HC04
+5V IC003 μPA54HA
R117 220
R118 220
37C AES/EBU WCLK (+)
37D AES/EBU WCLK (-)
37A EXT SCLK (+)
37B EXT SCLK (-)
38A EXT WCLK (+)
38B EXT WCLK (-)
R119 220
R112 10
R108 10
R113 10
R109 10
R110 10
R114 10
ICN6 AM26LS32
IN4 (+) IN4 (-) IN3 (+) IN3 (-) IN2 (+) IN2 (-) IN1 (+) IN1 (-) EN
C104 56p
C101 56p
C105 56p
C102 56p
C103 56p
C106 56p
IC004 μPA64HA
ICK10 74HC153
+5V R035 3.3k C050 100p (CH)
ICD4 74HC123
ICC5 74HC74
ICD5 74HC74
ICD8 74ALS08
ICD9 74ALS112A
ICD6 74HC04
ICD5 74HC74
ICD8 74ALS08
TP021
39C EXT SCLK
39D EXT SCLK RG
R116 10
R115 1k
D027 1SS227
C107 47 16V
C108 0.1 :CM
R106 3.3k
R107 1.2k
C100 1.5 :CM
R111 10
ICC8 TC74HC157
ICD6 74HC04
+5V R036 3.3k C051 100p (CH)
ICD4 74HC123
ICD7 74HC74
ICD8 74ALS08
ICD9 74ALS112A
TP008
ICD6 74HC04
ICD7 74HC74
ICD8 74ALS08
4/4 EXT SYNC CHECK1
4/4 EXT SYNC CHECK0
4/4 EXT SYNC SELECT 1
4/4 EXT SYNC SELECT 0
ICJ4 74HC175
ICJ2 74HC32
3/4 S SYNC*
ICA1 74HC02
ICA1 74HC02
ICD6 74HC04
ICD6 74HC04
4/4 VD1*
4/4 VD2*
4/4 VD3*
4/4 VD4*
4/4 VD5*
4/4 VD6*
4/4 VD7*
4/4 VD8*

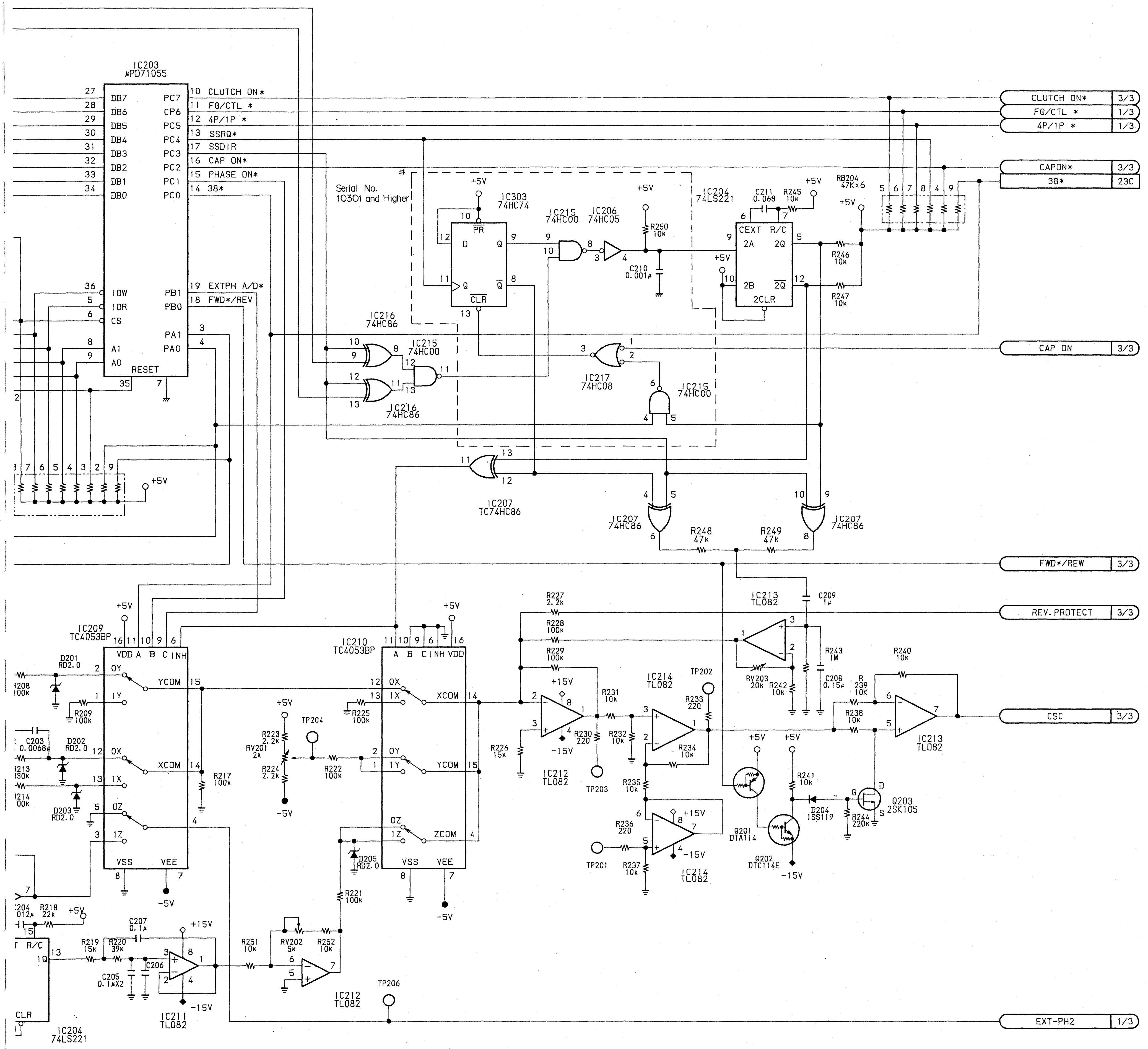

5.76M 4/4
1.44M 4/4
1.44M 1/4
WORD PLL LOCKED* 4/4
ICB5 74F175PC
ICB4 74HC74
ICB2 74HC161
ICB1 74HC00
ICA1 74HC02
ICD11 74HC02
ICC3 74HC08
ICC6 MC74F153N
ICB6 CX23065
ICA5 TLC272CP
R231 4.7k
R232 4.7k
TP001
TP002
TP003
TP005
TP006
TP007 (4.5V/18.432MHz)
Q001 DTA114ES
Q002 DTA114ES
Q003 DTA114ES
VX01 18.432MHZ
VX02 16.9344MHZ
VX03 16.9344MHZ
ICB7 74HC08
ICB8 74HC32
ICB9 74HC11
ICC1 74HC04
D005 TLB124A
D003 TLB124A
D007 TLB124A
D004 TLB124A
VIDEO
EXT
AES/EBU
RM-3
LEVEL
ICA4 CX23043
ICA2 CX23043
ICA3 CX23043
ICC7 74F04
ICB3 74ALS04
ICC9 74HC00
384F* 3/4
ICC8 TC74HC157
ICC002 78L05A
ICC001 78L08A
ICC13 MC4044
ICD13 TLC272CP
D014 FC52M-4
Q005 2SK241-GR
Q004 2SK241-GR
T1
ICC15 74HCU04
ICB15 74F74
ICC12 74ALS175
ICD12 74HC74
ICC11 74HC161
ICB11 74AS163
ICB12 74AS163
ICB13 74AS163
ICB14 74AS30
VARI PLL LOCKED* 4/4
VARI*/WIDE SEL 4/4
VSYNC EN* 1/4
EXT SECTOR 3/4
EXT WORD CHECK 4/4
EXT SECTOR CHECK 4/4

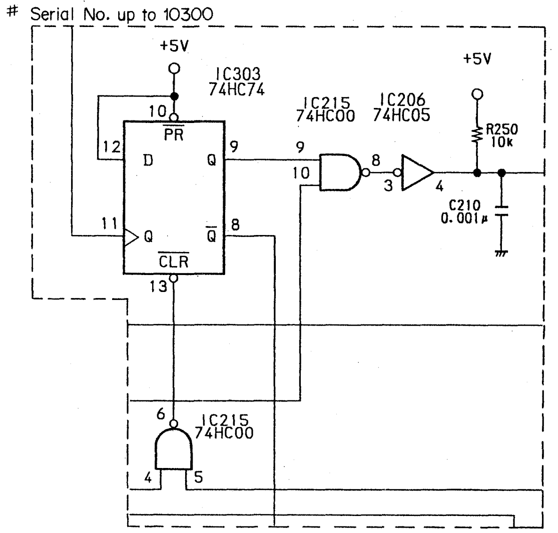
Clock Generator

CK-31 BOARD (2/4)

BOARD NO.1-627-113-11 & HIGHER
PCM-3348


1/3 MSB
1/3 MSB-1
18C DB 7
18B DB 6
18A DB 5
17D DB 4
17C DB 3
17B DB 2
17A DB 1
16D DB 0
RB201 47K×8
IC201 74HC645
DIR
IC205 74HC32
IC202 74HC541
14C DBEN *
14B BR */W
15D CAPCS *
16C IOW *
16B IOR *
15A AB 2
14D AB 1
14A RESET *
RB202 47K×8
IC206 74HC05
IC203 μPD71055
CLUTCH ON*
FG/CTL *
4P/1P *
SSRQ*
SSDIR
CAP ON*
PHASE ON*
38*
EXTPH A/D*
FWD*/REV
RESET
RB203 3.3K×8
+5V
R201 47k
1/3 IMACK *
27C BOARD CHECK
Serial No. 10301 and Higher
IC303 74HC74
IC215 74HC00
IC206 74HC05
R250 10k
C210 0.001μ
IC204 74LS221
C211 0.068
R245 10k
RB204 47K×6
R246 10k
R247 10k
IC216 74HC86
IC217 74HC08
IC207 TC74HC86
IC207 74HC86
R248 47k
R249 47k
C209 1μ
IC213 TL082
1/3 PHERR
R202 10k
IC208 TL082CP
R205 33k
R204 33k
R206 4.7k
C201 4.7μ
+15V
-15V
R208 100k
D201 RD2.0
R209 100k
R212 330k
C203 0.0068μ
D202 RD2.0
R213 330k
R214 100k
D203 RD2.0
1/3 VLERR
R203 10k
R211 150k
R210 10k
C202 0.001μ
IC209 TC4053BP
VDD A B C INH
YCOM
XCOM
ZCOM
VSS VEE
-5V
R217 100k
TP205
26D EXT-PH1
R207 100k
R215 15k
IC211 TL082
R216 15k
C204 0.012μ
R218 22k
CEXT R/C
1A 1Q
1B
1CLR
1/3 4KHz
IC204 74LS221
C207 0.1μ
R219 15k
R220 39k
C205 0.1μ×2
C206
IC211 TL082
R251 10k
RV202 5k
R252 10k
IC212 TL082
TP206
R221 100k
D205 RD2.0
R223 2.2k
RV201 2k
R224 2.2k
TP204
R222 100k
R225 100k
IC210 TC4053BP
R226 15k
R227 2.2k
R228 100k
R229 100k
IC212 TL082
R230 220
R231 10k
R232 10k
TP203
IC214 TL082
R233 220
TP202
R234 10k
R235 10k
R236 220
TP201
R237 10k
RV203 20k
R242 10k
R243 1M
C208 0.15μ
R239 10k
R238 10k
R241 10k
Q201 DTA114
Q202 DTC114E
D204 1SS119
R244 220k
Q20
2SK1


IC203 μPD71055
CLUTCH ON*
FG/CTL *
4P/1P *
SSRQ*
SSDIR
CAP ON*
PHASE ON*
38*
EXTPH A/D*
FWD*/REV
Serial No. 10301 and Higher
IC303 74HC74
IC215 74HC00
IC206 74HC05
IC204 74LS221
RB204 47k×6
IC216 74HC86
IC217 74HC08
IC207 TC74HC86
IC207 74HC86
CAPON* 3/3
38* 23C
CAP ON 3/3
FWD*/REW 3/3
REV.PROTECT 3/3
CSC 3/3
EXT-PH2 1/3
IC209 TC4053BP
IC210 TC4053BP
IC212 TL082
IC213 TL082
IC214 TL082
IC211 TL082
Q201 DTA114
Q202 DTC114E
Q203 2SK105
D204 1SS119
TP201
TP202
TP203
TP204
TP206
IC204 74LS221


# Serial No. up to 10300
IC303 74HC74
IC215 74HC00
IC206 74HC05
R250 10k
C210 0.001μ
IC215 74HC00

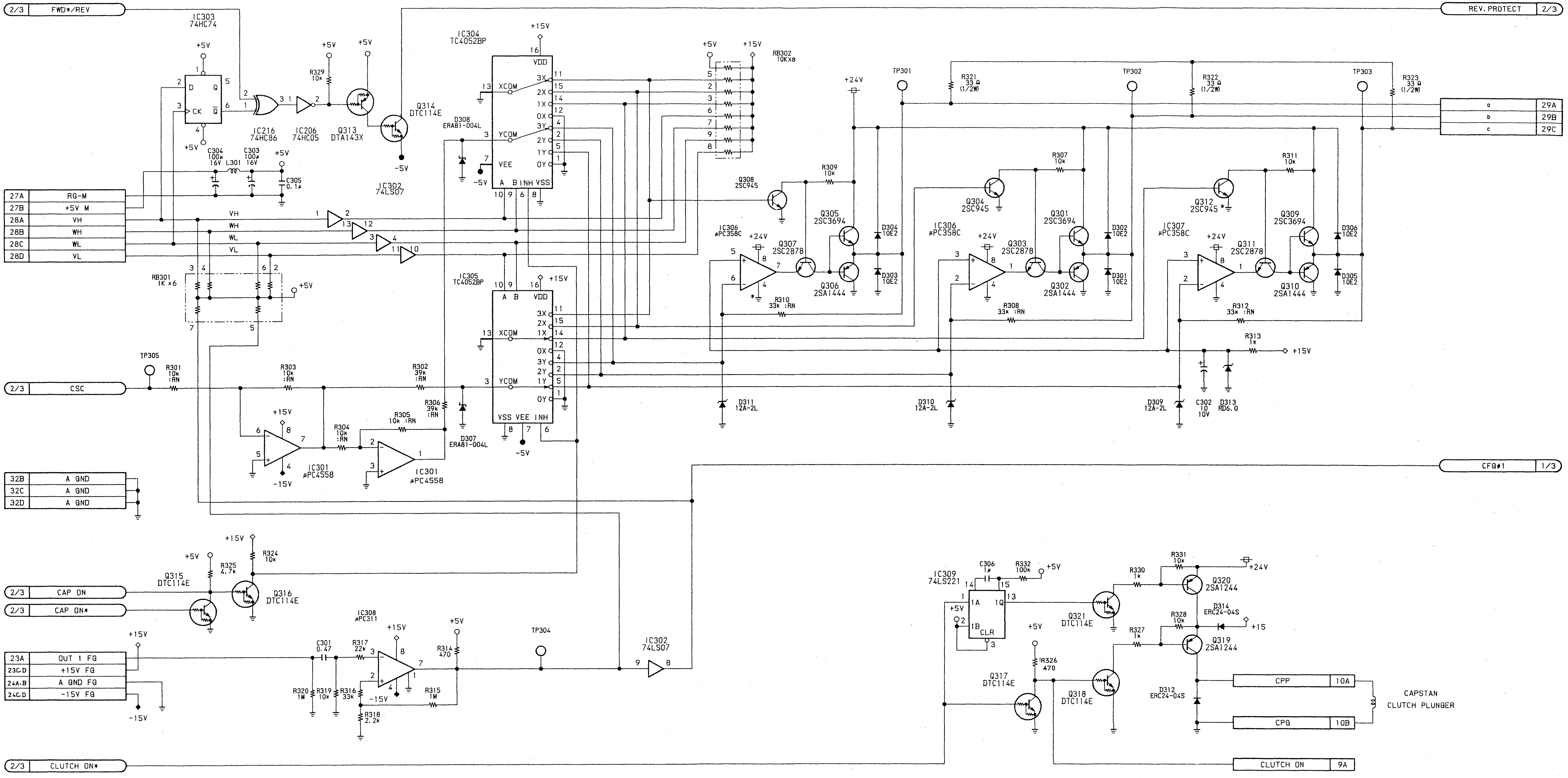
#: Changed Information

Applied Serial No.	Parts that have been added.
10301 and higher	IC217

Capstan Servo

CS-24 BOARD (2/3)

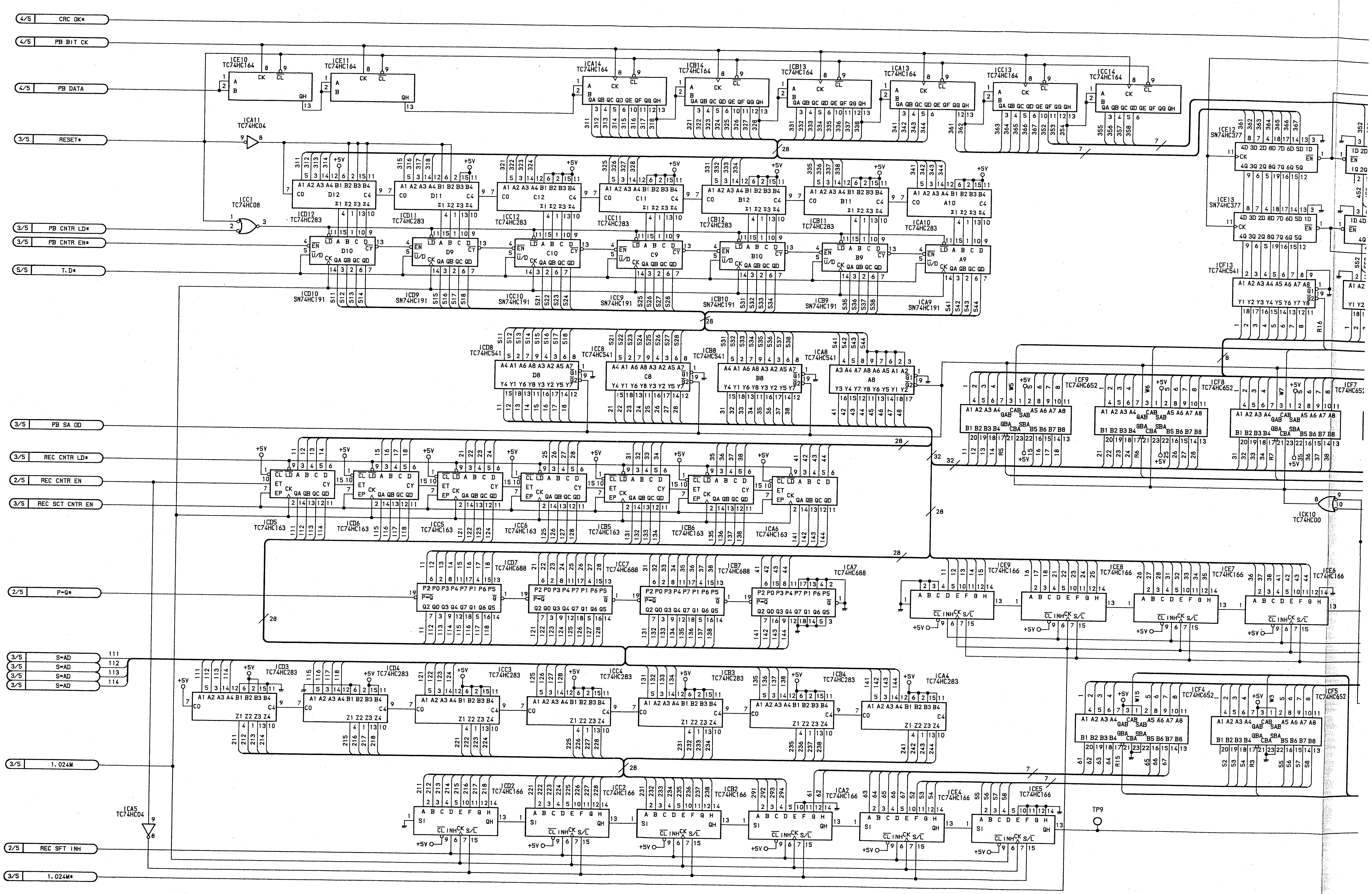
BOARD NO.1-627-099-12 & HIGHER
PCM-3348

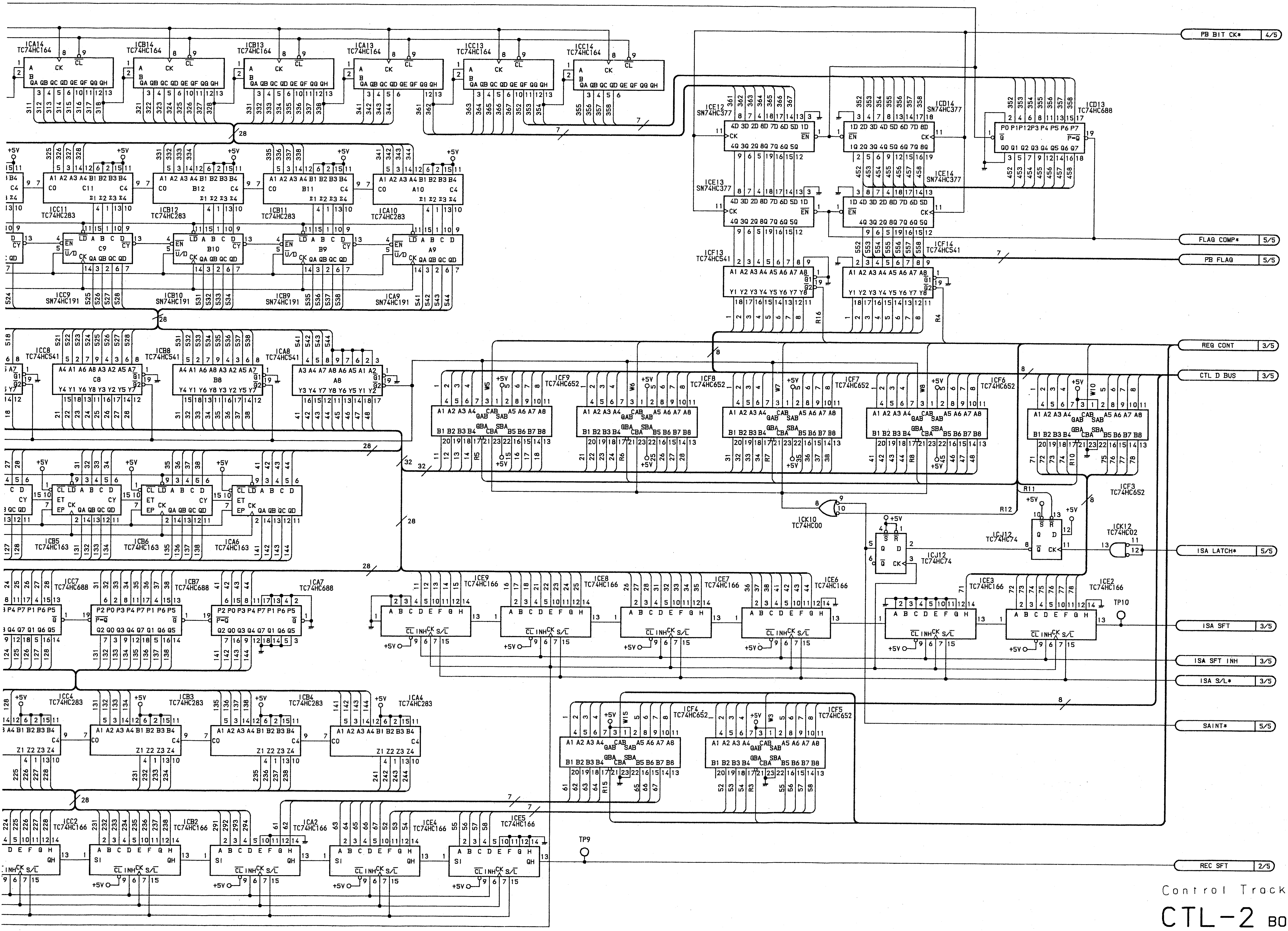

2/3 FWD*/REV
REV. PROTECT 2/3
IC303 74HC74
IC216 74HC86
IC206 74HC05
Q313 DTA143X
Q314 DTC114E
IC302 74LS07
IC304 TC4052BP
IC305 TC4052BP
D308 ERA81-004L
D307 ERA81-004L
RB302 10K×8
RB301 1K×6
TP301
TP302
TP303
TP304
TP305
R321 33Ω (1/2W)
R322 33Ω (1/2W)
R323 33Ω (1/2W)
29A
29B
29C
27A RG-M
27B +5V M
28A VH
28B WH
28C WL
28D VL
C304 100μ 16V
L301
C303 100μ 16V
C305 0.1μ
Q308 2SC945
Q304 2SC945
Q312 2SC945
Q305 2SC3694
Q301 2SC3694
Q309 2SC3694
Q307 2SC2878
Q303 2SC2878
Q311 2SC2878
Q306 2SA1444
Q302 2SA1444
Q310 2SA1444
IC306 μPC358C
IC307 μPC358C
D304 10E2
D303 10E2
D302 10E2
D301 10E2
D306 10E2
D305 10E2
R309 10k
R307 10k
R311 10k
R310 33k :RN
R308 33k :RN
R312 33k :RN
R313 1k
D311 12A-2L
D310 12A-2L
D309 12A-2L
C302 10 10V
D313 RD6.0
+15V
+24V
2/3 CSC
R301 10k :RN
R303 10k :RN
R302 39k :RN
R306 39k :RN
R304 10k :RN
R305 10k :RN
IC301 μPC4558
CFG#1 1/3
32B A GND
32C A GND
32D A GND
Q315 DTC114E
Q316 DTC114E
R325 4.7k
R324 10k
2/3 CAP ON
2/3 CAP ON*
23A OUT 1 FG
23C.D +15V FG
24A.B A GND FG
24C.D -15V FG
IC308 μPC311
C301 0.47
R317 22k
R320 1M
R319 10k
R316 33k
R318 2.2k
R314 470
R315 1M
IC302 74LS07
2/3 CLUTCH ON*
IC309 74LS221
C306 1μ
R332 100k
R326 470
Q317 DTC114E
Q318 DTC114E
Q321 DTC114E
R330 1k
R331 10k
R327 1k
R328 10k
Q320 2SA1244
Q319 2SA1244
D314 ERC24-04S
D312 ERC24-04S
CPP 10A
CPG 10B
CLUTCH ON 9A
CAPSTAN CLUTCH PLUNGER

Capstan Servo

CS-24 BOARD (3/3)

BOARD NO.1-627-099-12 & HIGHER
PCM-3348


4/5 CRC OK*
4/5 PB BIT CK
4/5 PB DATA
3/5 RESET*
3/5 PB CNTR LD*
3/5 PB CNTR EN*
5/5 T.D*
3/5 PB SA OD
3/5 REC CNTR LD*
2/5 REC CNTR EN
3/5 REC SCT CNTR EN
2/5 P=Q*
3/5 S-AD
3/5 S-AD
3/5 S-AD
3/5 S-AD
3/5 1.024M
2/5 REC SFT INH
3/5 1.024M*
ICE10 TC74HC164
ICE11 TC74HC164
ICA14 TC74HC164
ICB14 TC74HC164
ICB13 TC74HC164
ICA13 TC74HC164
ICC13 TC74HC164
ICC14 TC74HC164
ICA11 TC74HC04
ICC1 TC74HC08
ICD12 TC74HC283
ICD11 TC74HC283
ICC12 TC74HC283
ICC11 TC74HC283
ICB12 TC74HC283
ICB11 TC74HC283
ICA10 TC74HC283
ICD10 SN74HC191
ICD9 SN74HC191
ICC10 SN74HC191
ICC9 SN74HC191
ICB10 SN74HC191
ICB9 SN74HC191
ICA9 SN74HC191
ICE12 SN74HC377
ICE13 SN74HC377
ICF13 TC74HC541
ICD8 TC74HC541
ICC8 TC74HC541
ICB8 TC74HC541
ICA8 TC74HC541
ICF9 TC74HC652
ICF8 TC74HC652
ICF7 TC74HC652
ICD5 TC74HC163
ICD6 TC74HC163
ICC5 TC74HC163
ICC6 TC74HC163
ICB5 TC74HC163
ICB6 TC74HC163
ICA6 TC74HC163
ICK10 TC74HC00
ICD7 TC74HC688
ICC7 TC74HC688
ICB7 TC74HC688
ICA7 TC74HC688
ICE9 TC74HC166
ICE8 TC74HC166
ICE7 TC74HC166
ICE6 TC74HC166
ICD3 TC74HC283
ICD4 TC74HC283
ICC3 TC74HC283
ICC4 TC74HC283
ICB3 TC74HC283
ICB4 TC74HC283
ICA4 TC74HC283
ICF4 TC74HC652
ICF5 TC74HC652
ICA5 TC74HC04
ICD2 TC74HC166
ICC2 TC74HC166
ICB2 TC74HC166
ICA2 TC74HC166
ICE4 TC74HC166
ICE5 TC74HC166
TP9
+5V
28
32
7
8
R5
R6
R7
R15
R3
R16
W5
W6
W7
W15
W3

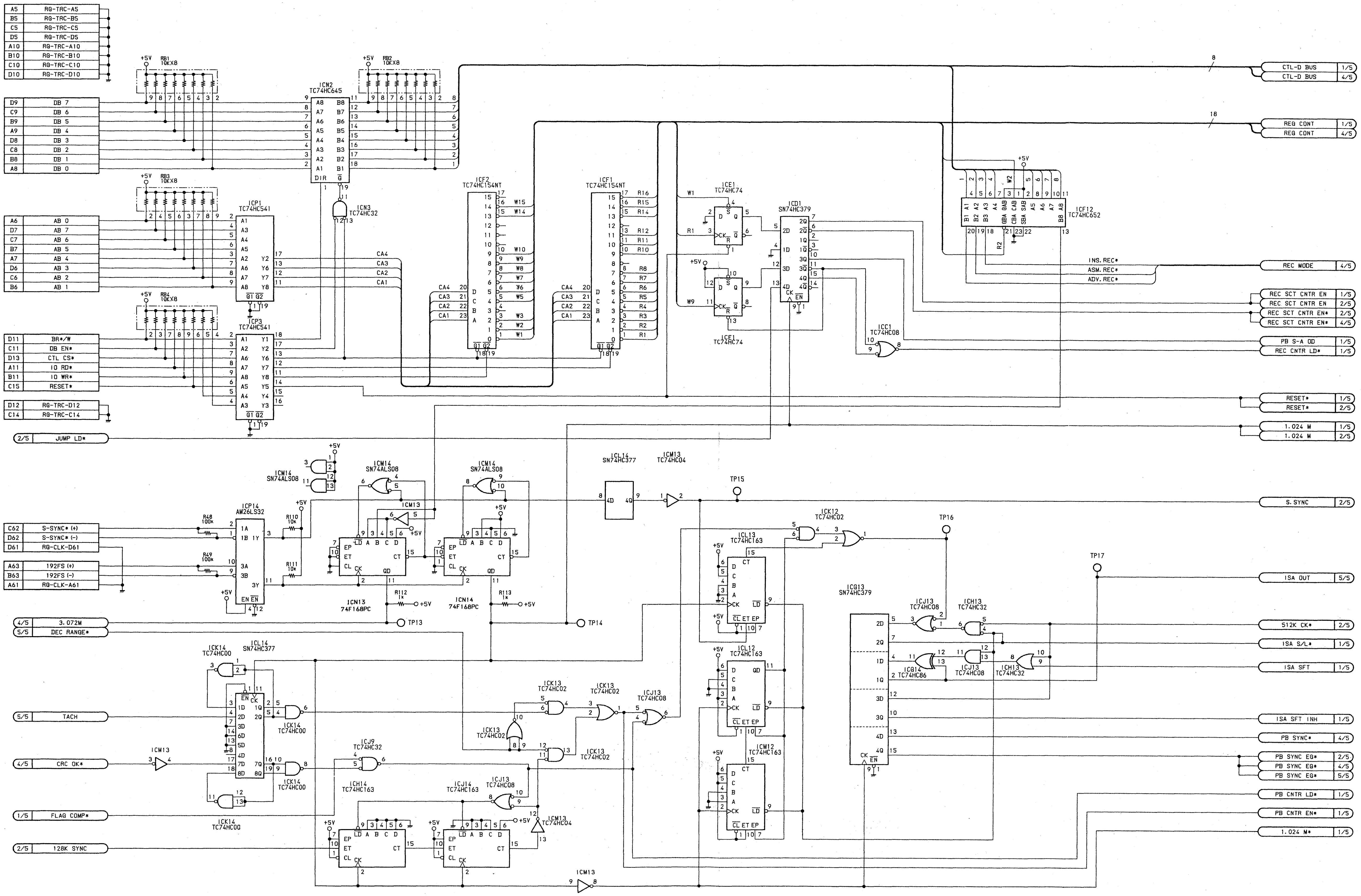

ICA14 TC74HC164
ICB14 TC74HC164
ICB13 TC74HC164
ICA13 TC74HC164
ICC13 TC74HC164
ICC14 TC74HC164
ICE12 SN74HC377
ICD14 SN74HC377
ICD13 TC74HC688
ICE13 SN74HC377
ICE14 SN74HC377
ICF13 TC74HC541
ICF14 TC74HC541
ICC11 TC74HC283
ICB12 TC74HC283
ICB11 TC74HC283
ICA10 TC74HC283
ICC9 SN74HC191
ICB10 SN74HC191
ICB9 SN74HC191
ICA9 SN74HC191
ICC8 TC74HC541
ICB8 TC74HC541
ICA8 TC74HC541
ICF9 TC74HC652
ICF8 TC74HC652
ICF7 TC74HC652
ICF6 TC74HC652
ICF3 TC74HC652
ICB5 TC74HC163
ICB6 TC74HC163
ICA6 TC74HC163
ICK10 TC74HC00
ICJ12 TC74HC74
ICJ12 TC74HC74
ICK12 TC74HC02
ICC7 TC74HC688
ICB7 TC74HC688
ICA7 TC74HC688
ICE9 TC74HC166
ICE8 TC74HC166
ICE7 TC74HC166
ICE6 TC74HC166
ICE3 TC74HC166
ICE2 TC74HC166
TP10
ICC4 TC74HC283
ICB3 TC74HC283
ICB4 TC74HC283
ICA4 TC74HC283
ICF4 TC74HC652
ICF5 TC74HC652
ICC2 TC74HC166
ICB2 TC74HC166
ICA2 TC74HC166
ICE4 TC74HC166
ICE5 TC74HC166
TP9
+5V
PB BIT CK* 4/5
FLAG COMP* 5/5
PB FLAG 5/5
REG CONT 3/5
CTL D BUS 3/5
ISA LATCH* 5/5
ISA SFT 3/5
ISA SFT INH 3/5
ISA S/L* 3/5
SAINT* 5/5
REC SFT 2/5

Control Track

CTL-2 BOARD (1/5)

BOARD NO. 1-627-116-11 & HIGHER
PCM-3348

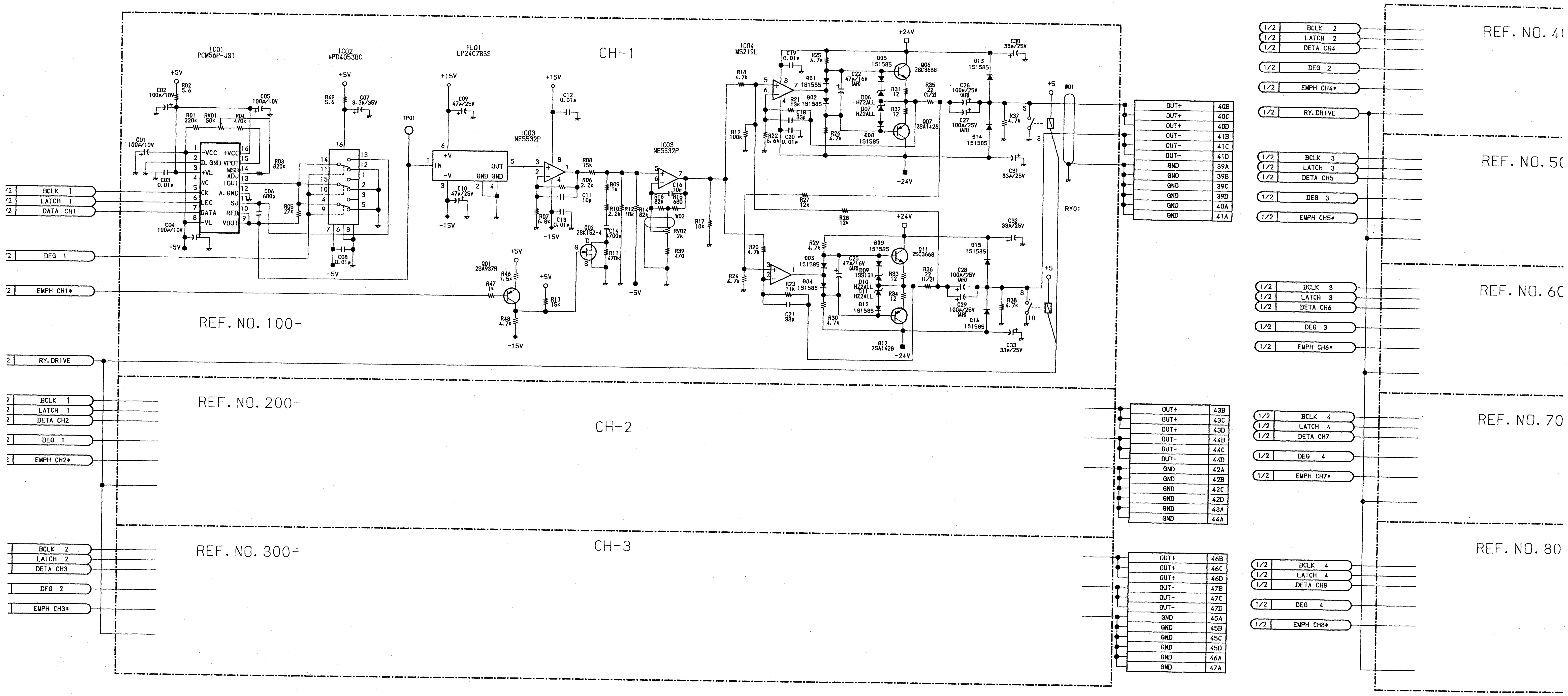
B-154

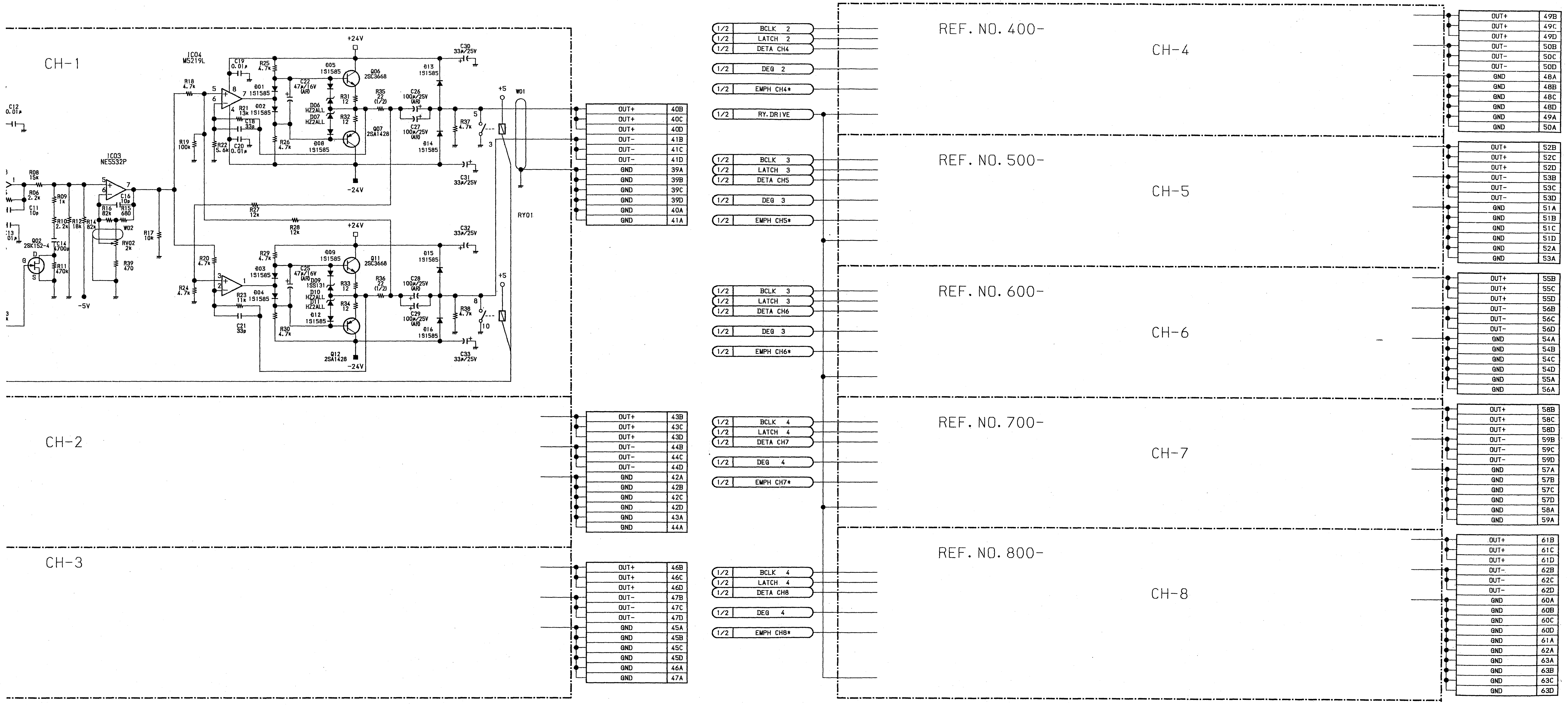

RG-TRC-A5
RG-TRC-B5
RG-TRC-C5
RG-TRC-D5
RG-TRC-A10
RG-TRC-B10
RG-TRC-C10
RG-TRC-D10
DB 7
DB 6
DB 5
DB 4
DB 3
DB 2
DB 1
DB 0
AB 0
AB 7
AB 6
AB 5
AB 4
AB 3
AB 2
AB 1
BR*/W
DB EN*
CTL CS*
IO RD*
IO WR*
RESET*
RG-TRC-D12
RG-TRC-C14
JUMP LD*
RB1 10KX8
RB2 10KX8
RB3 10KX8
RB4 10KX8
ICN2 TC74HC645
ICN3 TC74HC32
ICP1 TC74HC541
ICP3 TC74HC541
ICF2 TC74HC154NT
ICF1 TC74HC154NT
ICE1 TC74HC74
ICD1 SN74HC379
ICF12 TC74HC652
ICC1 TC74HC08
CTL-D BUS
REG CONT
REC MODE
INS. REC*
ASM. REC*
ADV. REC*
REC SCT CNTR EN
REC SCT CNTR EN*
PB S-A OD
REC CNTR LD*
RESET*
1.024 M
S-SYNC* (+)
S-SYNC* (-)
RG-CLK-D61
192FS (+)
192FS (-)
RG-CLK-A61
ICP14 AM26LS32
ICM14 SN74ALS08
ICM13 74F168PC
ICN14 74F168PC
ICL14 SN74HC377
ICM13 TC74HC04
TP13
TP14
TP15
TP16
TP17
S. SYNC
3.072M
DEC RANGE*
ICK14 TC74HC00
ICL14 SN74HC377
ICK12 TC74HC02
ICL13 TC74HC163
ICL12 TC74HC163
ICM12 TC74HC163
ICG13 SN74HC379
ICJ13 TC74HC08
ICH13 TC74HC32
ICG14 TC74HC86
ISA OUT
512K CK*
ISA S/L*
ISA SFT
ISA SFT INH
PB SYNC*
PB SYNC EG*
PB CNTR LD*
PB CNTR EN*
1.024 M*
TACH
CRC OK*
FLAG COMP*
128K SYNC
ICK13 TC74HC02
ICJ9 TC74HC32
ICH14 TC74HC163
ICJ14 TC74HC163
ICM13 TC74HC04

Control Track

CTL-2 BOARD (3/5)

BOARD NO.1-627-116-11 & HIGHER
PCM-3348

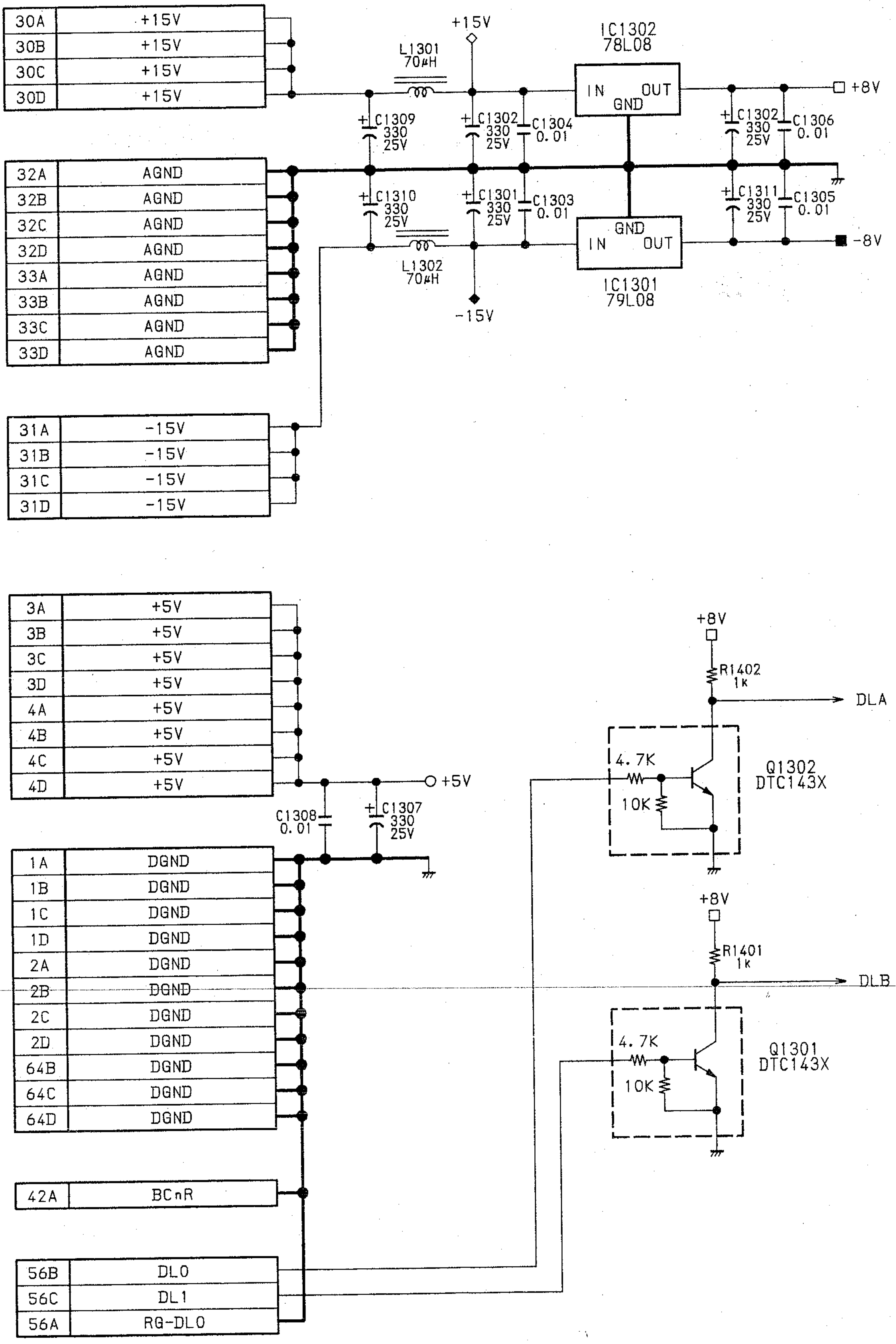

CH-1
CH-2
CH-3
REF. NO. 100-
REF. NO. 200-
REF. NO. 300-
REF. NO. 40
REF. NO. 50
REF. NO. 60
REF. NO. 70
REF. NO. 80
IC01 PCM56P-JS1
IC02 μPD4053BC
FL01 LP24C7B3S
IC03 NE5532P
IC04 M5219L
TP01
BCLK 1
LATCH 1
DATA CH1
DEG 1
EMPH CH1*
RY.DRIVE
BCLK 1
LATCH 1
DETA CH2
DEG 1
EMPH CH2*
BCLK 2
LATCH 2
DETA CH3
DEG 2
EMPH CH3*
BCLK 2
LATCH 2
DETA CH4
DEG 2
EMPH CH4*
RY.DRIVE
BCLK 3
LATCH 3
DETA CH5
DEG 3
EMPH CH5*
BCLK 3
LATCH 3
DETA CH6
DEG 3
EMPH CH6*
BCLK 4
LATCH 4
DETA CH7
DEG 4
EMPH CH7*
BCLK 4
LATCH 4
DETA CH8
DEG 4
EMPH CH8*
1/2
OUT+ 40B
OUT+ 40C
OUT+ 40D
OUT- 41B
OUT- 41C
OUT- 41D
GND 39A
GND 39B
GND 39C
GND 39D
GND 40A
GND 41A
OUT+ 43B
OUT+ 43C
OUT+ 43D
OUT- 44B
OUT- 44C
OUT- 44D
GND 42A
GND 42B
GND 42C
GND 42D
GND 43A
GND 44A
OUT+ 46B
OUT+ 46C
OUT+ 46D
OUT- 47B
OUT- 47C
OUT- 47D
GND 45A
GND 45B
GND 45C
GND 45D
GND 46A
GND 47A
+5V
-5V
+15V
-15V
+24V
-24V
+5
R01 220k
RV01 50k
R02 5.6
R03 820k
R04 470k
R05 27k
R06 2.2k
R07 6.8k
R08 15k
R09 1k
R10 2.2k
R11 470k
R12 18k
R13 15k
R14 82k
R15 680
R16 82k
R17 10k
R18 4.7k
R19 100k
R20 4.7k
R21 13k
R22 5.6k
R23 11k
R24 4.7k
R25 4.7k
R26 4.7k
R27 12k
R28 12k
R29 4.7k
R30 4.7k
R31 12
R32 12
R33 12
R34 12
R35 22 (1/2)
R36 22 (1/2)
R37 4.7k
R38 4.7k
R39 470
R46 1.5k
R47 1k
R48 4.7k
R49 5.6
RV02 2k
C01 100μ/10V
C02 100μ/10V
C03 0.01μ
C04 100μ/10V
C05 100μ/10V
C06 680p
C07 3.3μ/35V
C08 0.01μ
C09 47μ/25V
C10 47μ/25V
C11 10p
C12 0.01μ
C13 0.01μ
C14 4700p
C16 10p
C18 33p
C19 0.01μ
C20 0.01μ
C21 33p
C22 47μ/16V (AR)
C25 47μ/16V (AR)
C26 100μ/25V (AR)
C27 100μ/25V (AR)
C28 100μ/25V (AR)
C29 100μ/25V (AR)
C30 33μ/25V
C31 33μ/25V
C32 33μ/25V
C33 33μ/25V
D01 1S1585
D02 1S1585
D03 1S1585
D04 1S1585
D05 1S1585
D06 HZ2ALL
D07 HZ2ALL
D08 1S1585
D09 1SS131
D10 HZ2ALL
D11 HZ2ALL
D12 1S1585
D13 1S1585
D14 1S1585
D15 1S1585
D16 1S1585
Q01 2SA937R
Q02 2SK152-4
Q06 2SC3668
Q07 2SA1428
Q11 2SC3668
Q12 2SA1428
W01
W02
RY01
+VCC
-VCC
D. GND
+VL
NC
CK
LEC
DATA
-VL
VPOT
MSB ADJ
IOUT
A. GND
SJ
RFB
VOUT
IN
OUT
+V
-V
GND GND
G
D
S


CH-1
CH-2
CH-3
IC04 M5219L
IC03 NE5532P
+24V
-24V
-5V
+5
Q05 1S1585
Q06 2SC3668
Q07 2SA1428
Q09 1S1585
Q11 2SC3668
Q12 2SA1428
D06 HZ2ALL
D07 HZ2ALL
D09 1SS131
D10 HZ2ALL
D11 HZ2ALL
Q02 2SK152-4
RV02 2k
W01
W02
RY01
C30 33μ/25V
C31 33μ/25V
C32 33μ/25V
C33 33μ/25V
C26 100μ/25V (AR)
C27 100μ/25V (AR)
C28 100μ/25V (AR)
C29 100μ/25V (AR)
C22 47μ/16V (AR)
C25 47μ/16V (AR)
OUT+
OUT-
GND
REF. NO. 400-
REF. NO. 500-
REF. NO. 600-
REF. NO. 700-
REF. NO. 800-
CH-4
CH-5
CH-6
CH-7
CH-8
1/2
BCLK 2
LATCH 2
DETA CH4
DEG 2
EMPH CH4*
RY. DRIVE
BCLK 3
LATCH 3
DETA CH5
DEG 3
EMPH CH5*
DETA CH6
EMPH CH6*
BCLK 4
LATCH 4
DETA CH7
DEG 4
EMPH CH7*
DETA CH8
EMPH CH8*

Digital Analog

DA-25 BOARD (2/2)

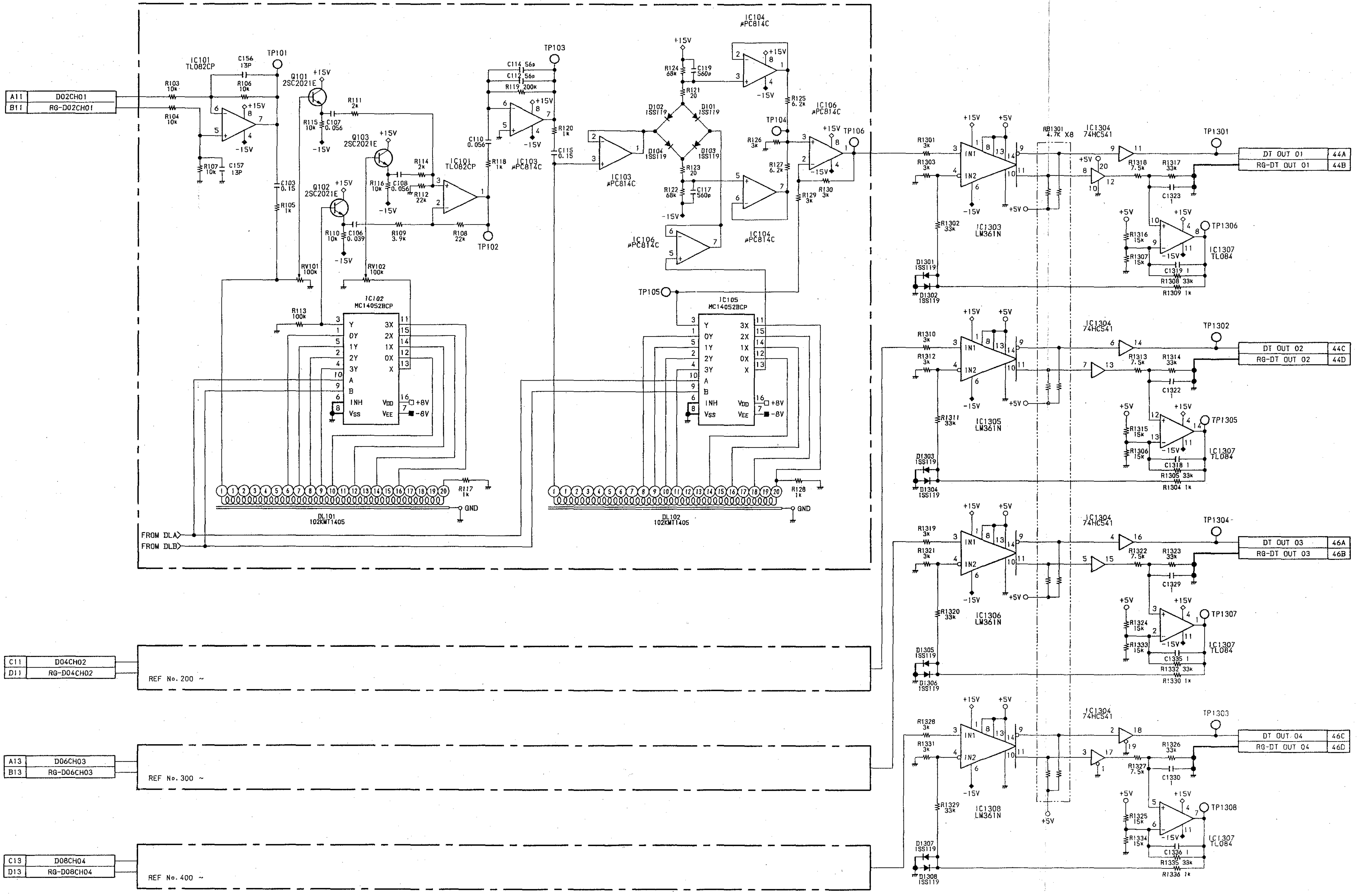
BOARD NO.1-625-486-12 & HIGHER
PCM-3348


30A +15V
30B +15V
30C +15V
30D +15V
32A AGND
32B AGND
32C AGND
32D AGND
33A AGND
33B AGND
33C AGND
33D AGND
31A -15V
31B -15V
31C -15V
31D -15V
+15V
L1301 70μH
L1302 70μH
-15V
C1309 330 25V
C1310 330 25V
C1302 330 25V
C1301 330 25V
C1304 0.01
C1303 0.01
IC1302 78L08
IC1301 79L08
IN OUT GND
C1302 330 25V
C1311 330 25V
C1306 0.01
C1305 0.01
+8V
-8V
3A +5V
3B +5V
3C +5V
3D +5V
4A +5V
4B +5V
4C +5V
4D +5V
+5V
C1308 0.01
C1307 330 25V
1A DGND
1B DGND
1C DGND
1D DGND
2A DGND
2B DGND
2C DGND
2D DGND
64B DGND
64C DGND
64D DGND
42A BCnR
56B DL0
56C DL1
56A RG-DL0
+8V
R1402 1k
DLA
4.7K
10K
Q1302 DTC143X
+8V
R1401 1k
DLB
4.7K
10K
Q1301 DTC143X

Detector

DET-6 BOARD (1/4)

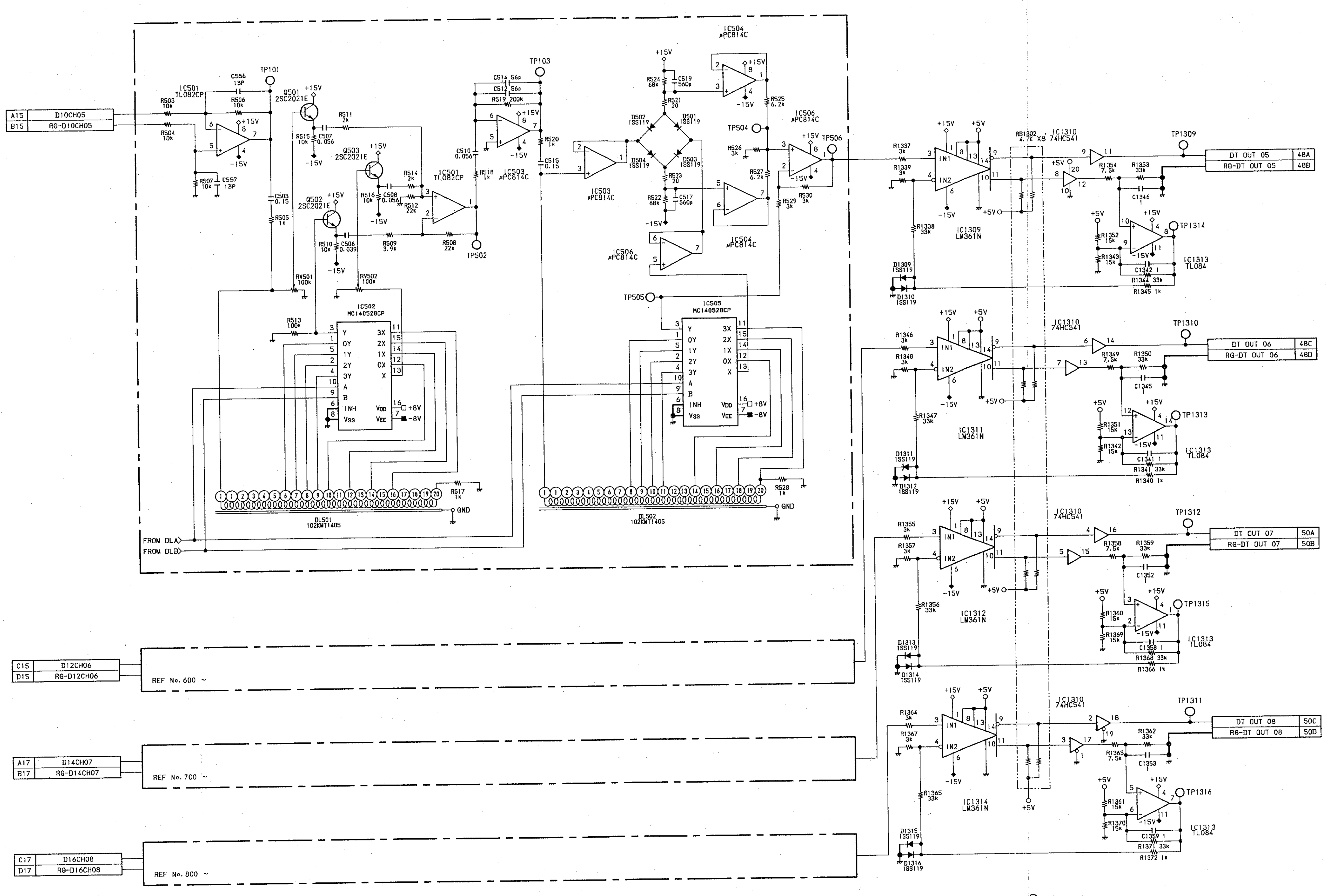
BOARD NO.1-627-108-11 & HIGHER
PCM-3348


A11
B11
D02CH01
RG-D02CH01
IC101
TL082CP
IC102
MC14052BCP
IC103
μPC814C
IC104
μPC814C
IC105
MC14052BCP
IC106
μPC814C
Q101
Q102
Q103
2SC2021E
D101
D102
D103
D104
1SS119
TP101
TP102
TP103
TP104
TP105
TP106
RV101
RV102
100k
DL101
DL102
102KMT1405
FROM DLA
FROM DLB
GND
+15V
-15V
+5V
+8V
-8V
C11
D11
D04CH02
RG-D04CH02
REF No. 200 ~
A13
B13
D06CH03
RG-D06CH03
REF No. 300 ~
C13
D13
D08CH04
RG-D08CH04
REF No. 400 ~
IC1303
IC1305
IC1306
IC1308
LM361N
IC1304
74HC541
IC1307
TL084
RB1301
4.7k X8
TP1301
TP1302
TP1303
TP1304
TP1305
TP1306
TP1307
TP1308
DT OUT 01
RG-DT OUT 01
44A
44B
DT OUT 02
RG-DT OUT 02
44C
44D
DT OUT 03
RG-DT OUT 03
46A
46B
DT OUT 04
RG-DT OUT 04
46C
46D
IN1
IN2

Detector

DET-6 BOARD (2/4)

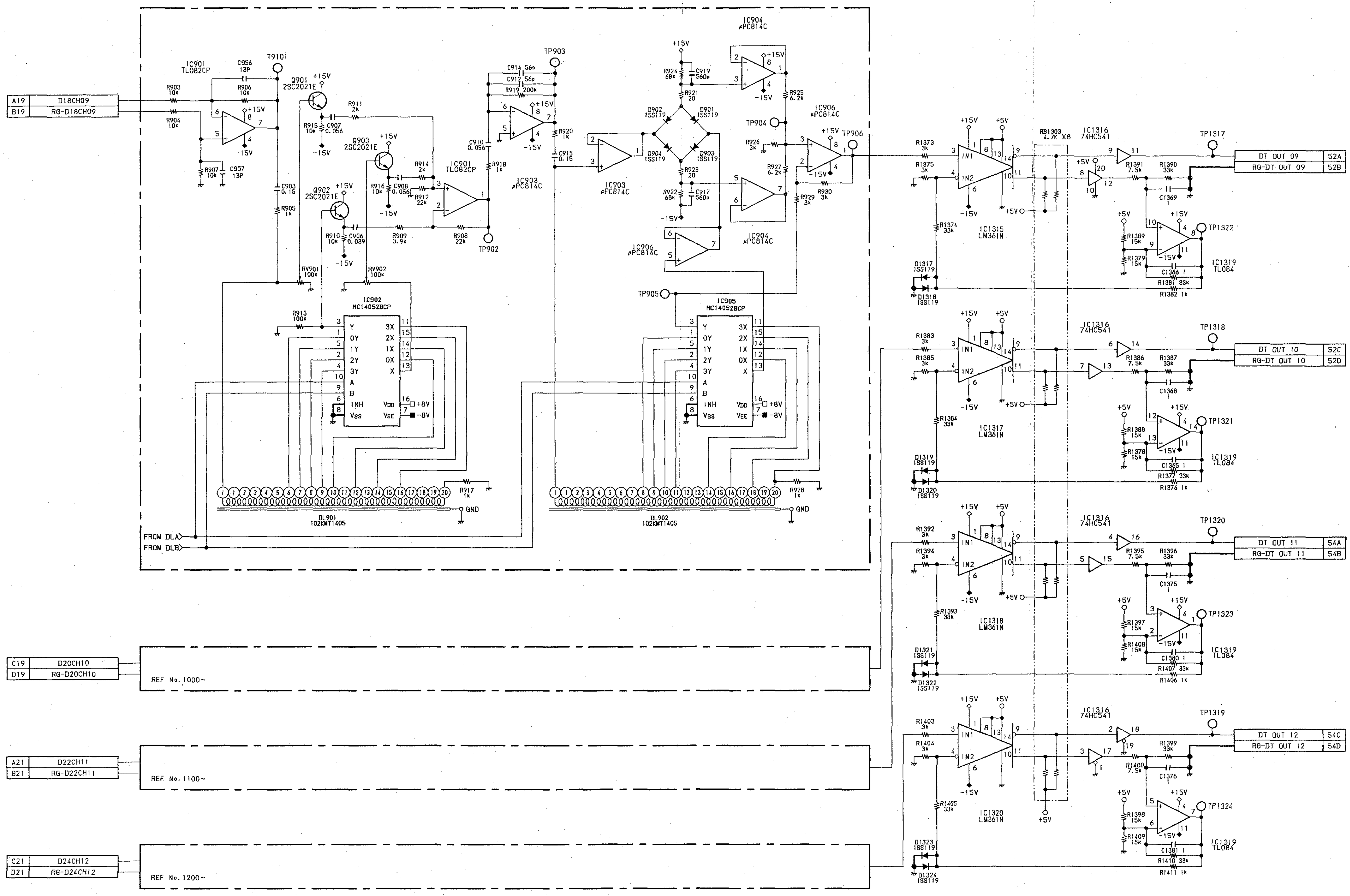
BOARD NO.1-627-108-11 & HIGHER
PCM-3348


A15
D10CH05
B15
RG-D10CH05
IC501
TL082CP
TP101
C556 13P
R503 10k
R506 10k
R504 10k
R507 10k
C557 13P
Q501
2SC2021E
+15V
-15V
R511 2k
R515 10k
C507 0.056
Q503
2SC2021E
R514 2k
R516 10k
C508 0.056
R512 22k
Q502
2SC2021E
R510 10k
C506 0.039
R509 3.9k
R508 22k
TP502
C503 0.15
R505 1k
RV501 100k
RV502 100k
IC502
MC14052BCP
R513 100k
TP103
C514 56p
C512 56p
R519 200k
C510 0.056
R518 1k
R520 1k
IC503
μPC814C
C515 0.15
IC504
μPC814C
R524 68k
C519 560p
R521 20
D502 1SS119
D501 1SS119
D504 1SS119
D503 1SS119
R523 20
R522 68k
C517 560p
R525 6.2k
TP504
R526 3k
R527 6.2k
R529 3k
R530 3k
IC506
μPC814C
TP506
TP505
IC505
MC14052BCP
Y
0Y
1Y
2Y
3Y
A
B
INH
VSS
3X
2X
1X
0X
X
VDD
VEE
+8V
-8V
R517 1k
R528 1k
GND
DL501
102KMT1405
DL502
102KMT1405
FROM DLA
FROM DLB
C15
D12CH06
D15
RG-D12CH06
REF No. 600 ~
A17
D14CH07
B17
RG-D14CH07
REF No. 700 ~
C17
D16CH08
D17
RG-D16CH08
REF No. 800 ~
R1337 3k
R1339 3k
IN1
IN2
IC1309
LM361N
R1338 33k
D1309 1SS119
D1310 1SS119
+5V
RB1302 4.7k X8
IC1310
74HC541
TP1309
R1354 7.5k
R1353 33k
C1346 1
DT OUT 05
RG-DT OUT 05
48A
48B
R1352 15k
R1343 15k
C1342 1
R1344 33k
R1345 1k
IC1313
TL084
TP1314
R1346 3k
R1348 3k
IC1311
LM361N
R1347 33k
D1311 1SS119
D1312 1SS119
TP1310
R1349 7.5k
R1350 33k
C1345 1
DT OUT 06
RG-DT OUT 06
48C
48D
R1351 15k
R1342 15k
C1341 1
R1341 33k
R1340 1k
TP1313
R1355 3k
R1357 3k
IC1312
LM361N
R1356 33k
D1313 1SS119
D1314 1SS119
TP1312
R1358 7.5k
R1359 33k
C1352 1
DT OUT 07
RG-DT OUT 07
50A
50B
R1360 15k
R1369 15k
C1358 1
R1368 33k
R1366 1k
TP1315
R1364 3k
R1367 3k
IC1314
LM361N
R1365 33k
D1315 1SS119
D1316 1SS119
TP1311
R1362 33k
R1363 7.5k
C1353 1
DT OUT 08
RG-DT OUT 08
50C
50D
R1361 15k
R1370 15k
C1359 1
R1371 33k
R1372 1k
TP1316

Detector

DET-6 BOARD (3/4)

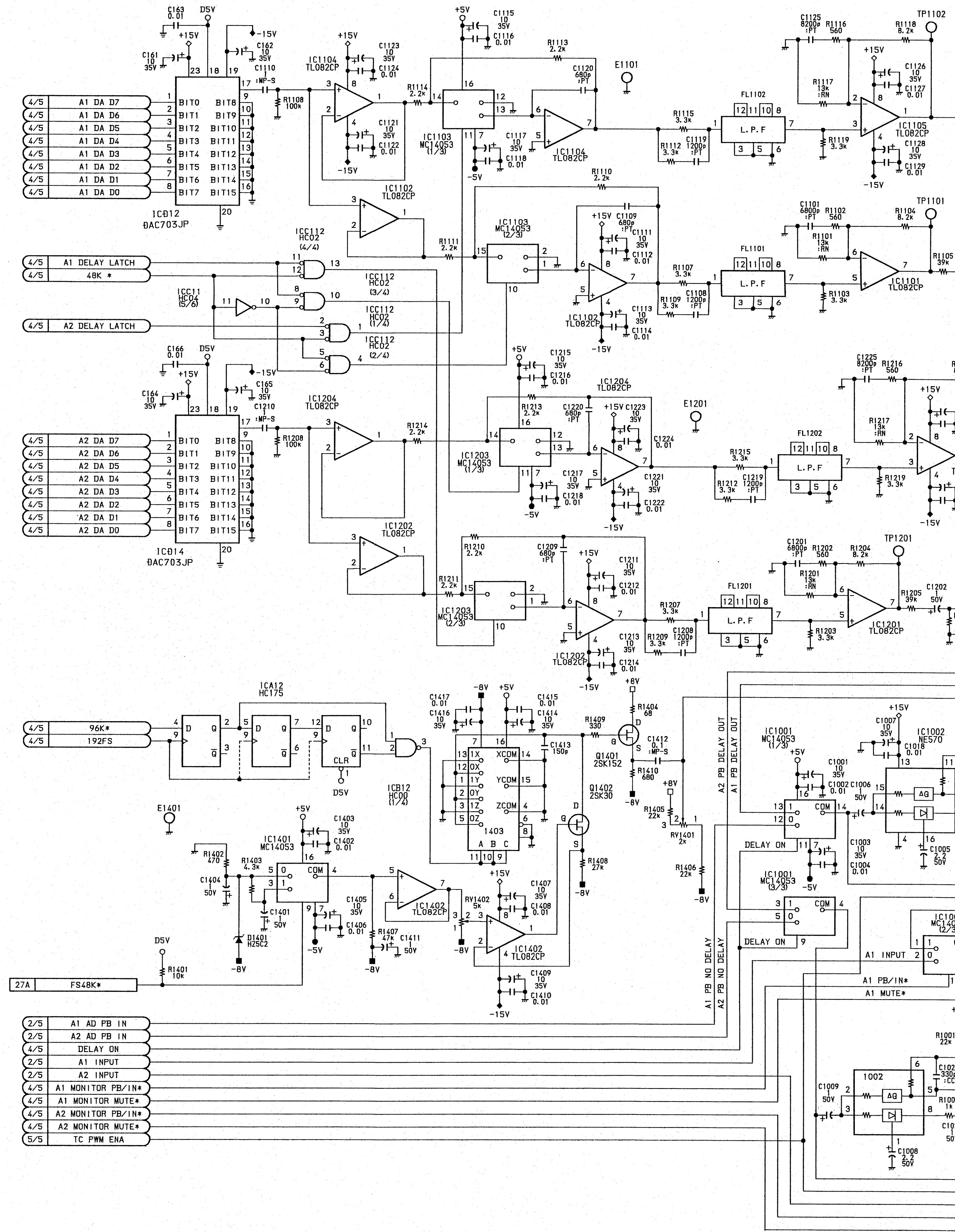
BOARD NO.1-627-108-11 & HIGHER
PCM-3348

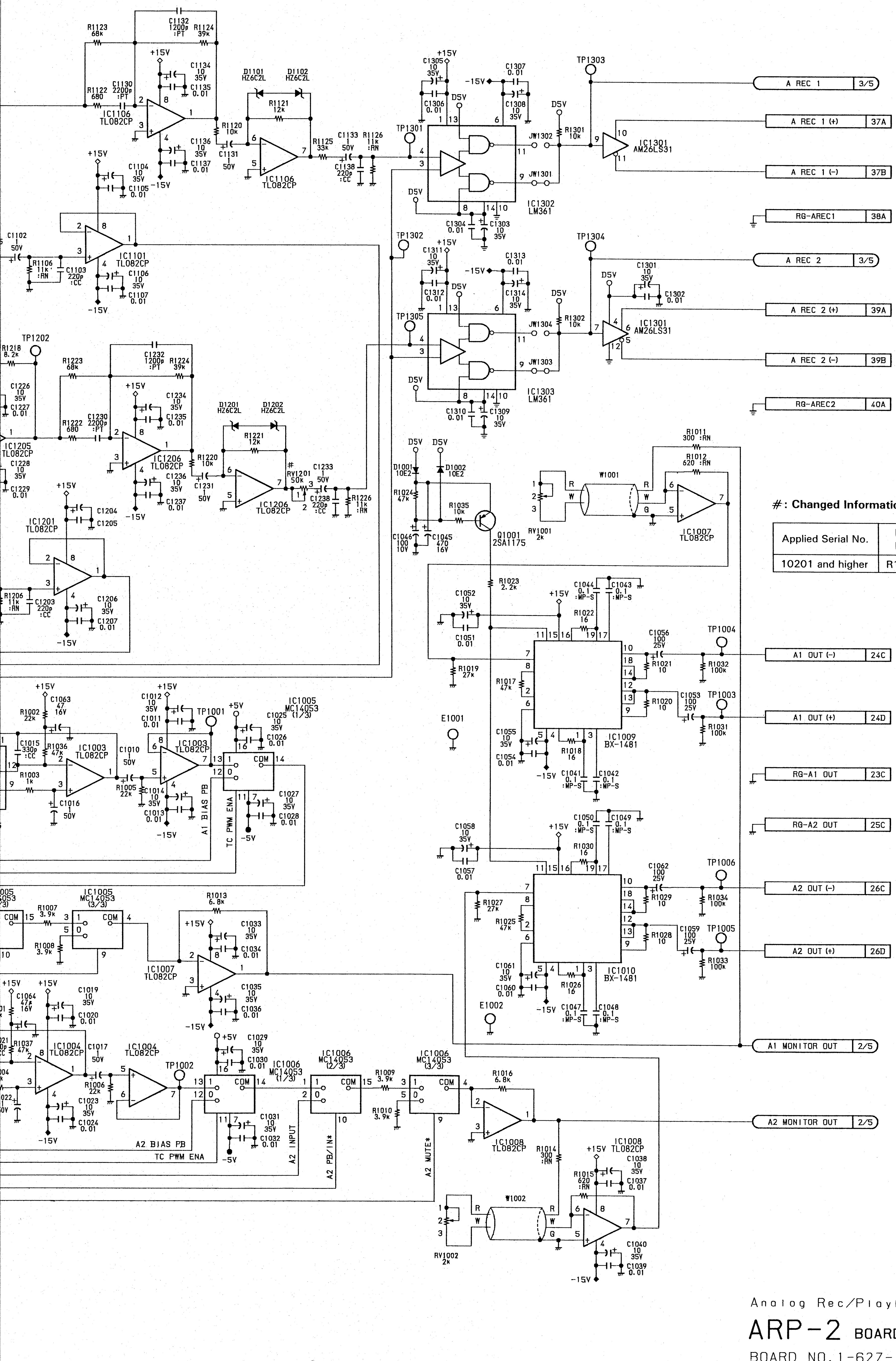

A19 D18CH09
B19 RG-D18CH09
C19 D20CH10
D19 RG-D20CH10
A21 D22CH11
B21 RG-D22CH11
C21 D24CH12
D21 RG-D24CH12
REF No. 1000~
REF No. 1100~
REF No. 1200~
IC901 TL082CP
IC902 MC14052BCP
IC903 μPC814C
IC904 μPC814C
IC905 MC14052BCP
IC906 μPC814C
Q901 2SC2021E
Q902 2SC2021E
Q903 2SC2021E
D901 1SS119
D902 1SS119
D903 1SS119
D904 1SS119
DL901 102KMT1405
DL902 102KMT1405
RV901 100k
RV902 100k
TP9101
TP902
TP903
TP904
TP905
TP906
FROM DLA
FROM DLB
GND
+15V
-15V
+8V
-8V
+5V
IC1315 LM361N
IC1317 LM361N
IC1318 LM361N
IC1320 LM361N
IC1316 74HC541
IC1319 TL084
RB1303 4.7k X8
D1317 1SS119
D1318 1SS119
D1319 1SS119
D1320 1SS119
D1321 1SS119
D1322 1SS119
D1323 1SS119
D1324 1SS119
TP1317
TP1318
TP1319
TP1320
TP1321
TP1322
TP1323
TP1324
DT OUT 09 52A
RG-DT OUT 09 52B
DT OUT 10 52C
RG-DT OUT 10 52D
DT OUT 11 54A
RG-DT OUT 11 54B
DT OUT 12 54C
RG-DT OUT 12 54D

Detector

DET-6 BOARD (4/4)

BOARD NO. 1-627-108-11 & HIGHER
PCM-3348


4/5 A1 DA D7
4/5 A1 DA D6
4/5 A1 DA D5
4/5 A1 DA D4
4/5 A1 DA D3
4/5 A1 DA D2
4/5 A1 DA D1
4/5 A1 DA D0
ICD12 DAC703JP
4/5 A1 DELAY LATCH
4/5 48K *
4/5 A2 DELAY LATCH
ICC11 HC04 (5/6)
ICC112 HC02 (4/4)
ICC112 HC02 (3/4)
ICC112 HC02 (1/4)
ICC112 HC02 (2/4)
4/5 A2 DA D7
4/5 A2 DA D6
4/5 A2 DA D5
4/5 A2 DA D4
4/5 A2 DA D3
4/5 A2 DA D2
4/5 A2 DA D1
4/5 A2 DA D0
ICD14 DAC703JP
IC1104 TL082CP
IC1102 TL082CP
IC1103 MC14053 (1/3)
IC1103 MC14053 (2/3)
IC1105 TL082CP
IC1101 TL082CP
FL1102 L.P.F
FL1101 L.P.F
TP1102
TP1101
E1101
IC1204 TL082CP
IC1202 TL082CP
IC1203 MC14053 (1/3)
IC1203 MC14053 (2/3)
IC1201 TL082CP
FL1202 L.P.F
FL1201 L.P.F
TP1201
E1201
4/5 96K*
4/5 192FS
ICA12 HC175
ICB12 HC00 (1/4)
1403
Q1401 2SK152
Q1402 2SK30
RV1401 2k
RV1402 5k
E1401
IC1401 MC14053
IC1402 TL082CP
D1401 HZ5C2
27A FS48K*
2/5 A1 AD PB IN
2/5 A2 AD PB IN
4/5 DELAY ON
2/5 A1 INPUT
2/5 A2 INPUT
4/5 A1 MONITOR PB/IN*
4/5 A1 MONITOR MUTE*
4/5 A2 MONITOR PB/IN*
4/5 A2 MONITOR MUTE*
5/5 TC PWM ENA
A1 PB NO DELAY
A2 PB NO DELAY
A2 PB DELAY OUT
A1 PB DELAY OUT
DELAY ON
IC1001 MC14053 (1/3)
IC1001 MC14053 (3/3)
IC1002 NE570
1002
A1 INPUT
A1 PB/IN*
A1 MUTE*
D5V
+5V
-5V
+15V
-15V
+8V
-8V


A REC 1 3/5
A REC 1 (+) 37A
A REC 1 (-) 37B
RG-AREC1 38A
A REC 2 3/5
A REC 2 (+) 39A
A REC 2 (-) 39B
RG-AREC2 40A
A1 OUT (-) 24C
A1 OUT (+) 24D
RG-A1 OUT 23C
RG-A2 OUT 25C
A2 OUT (-) 26C
A2 OUT (+) 26D
A1 MONITOR OUT 2/5
A2 MONITOR OUT 2/5
IC1106 TL082CP
IC1101 TL082CP
IC1205 TL082CP
IC1206 TL082CP
IC1201 TL082CP
IC1301 AM26LS31
IC1302 LM361
IC1303 LM361
IC1009 BX-1481
IC1010 BX-1481
IC1003 TL082CP
IC1004 TL082CP
IC1005 MC14053
IC1006 MC14053
IC1007 TL082CP
IC1008 TL082CP
Q1001 2SA1175
RV1001 2k
RV1002 2k
RV1201 50k
W1001
W1002
TP1001
TP1002
TP1003
TP1004
TP1005
TP1006
TP1202
TP1301
TP1302
TP1303
TP1304
TP1305
E1001
E1002
A1 BIAS PB
A2 BIAS PB
TC PWM ENA
A2 INPUT
A2 PB/IN*
A2 MUTE*
+15V
-15V
+5V
-5V
D5V

#: Changed Information

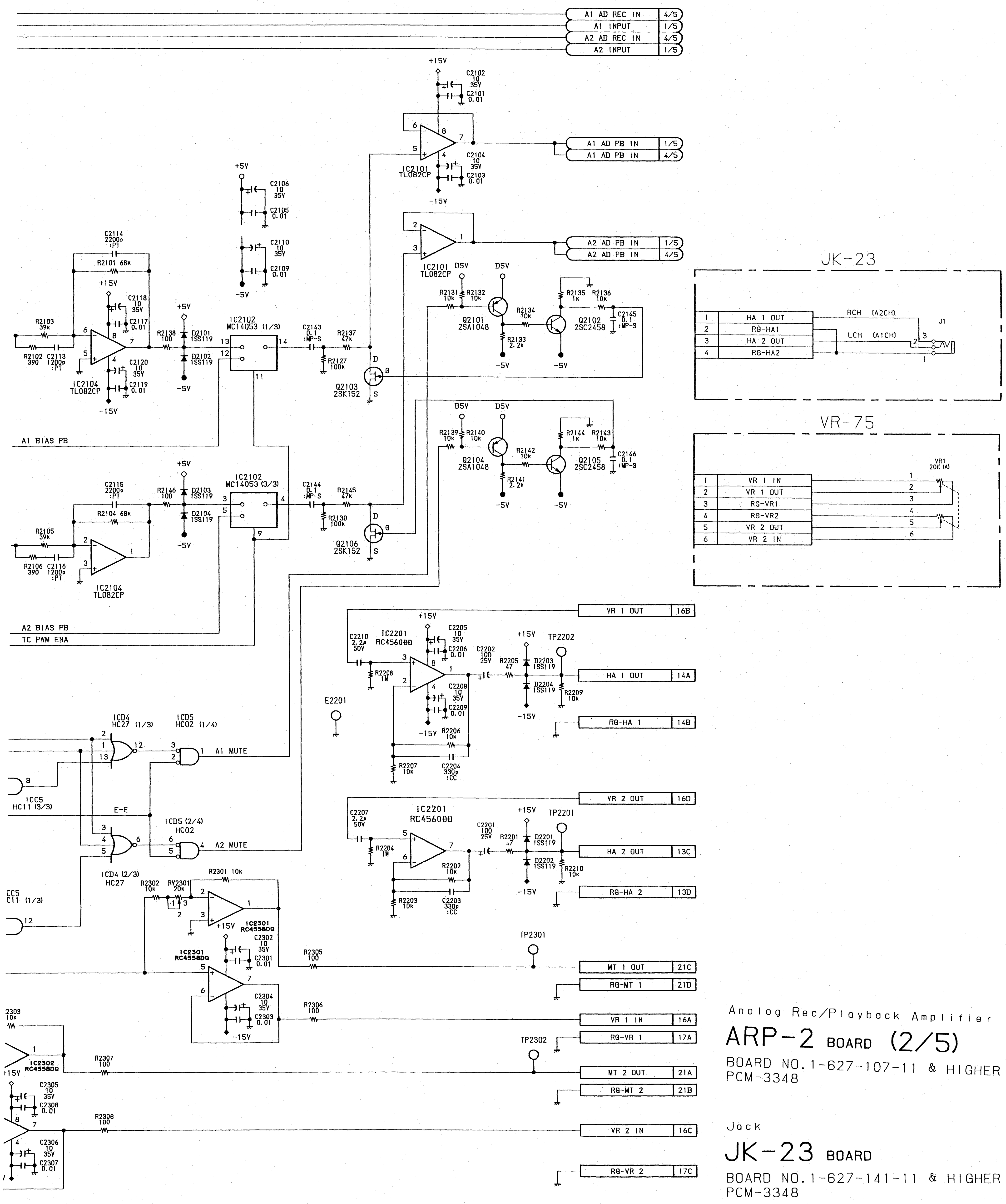
Applied Serial No.	Parts that have been changed.
10201 and higher	R1225 → RV1201

Analog Rec/Playback Amplifier

ARP-2 BOARD (1/5)

BOARD NO.1-627-107-11 & HIGHER

PCM-3348


A1 AD REC IN 4/5
A1 INPUT 1/5
A2 AD REC IN 4/5
A2 INPUT 1/5
A1 AD PB IN 1/5
A1 AD PB IN 4/5
A2 AD PB IN 1/5
A2 AD PB IN 4/5
IC2101 TL082CP
IC2102 MC14053 (1/3)
IC2102 MC14053 (3/3)
IC2104 TL082CP
Q2101 2SA1048
Q2102 2SC2458
Q2103 2SK152
Q2104 2SA1048
Q2105 2SC2458
Q2106 2SK152
D2101 1SS119
D2102 1SS119
D2103 1SS119
D2104 1SS119
A1 BIAS PB
A2 BIAS PB
TC PWM ENA
JK-23
HA 1 OUT
RG-HA1
HA 2 OUT
RG-HA2
RCH (A2CH)
LCH (A1CH)
J1
VR-75
VR1 20K (A)
VR 1 IN
VR 1 OUT
RG-VR1
RG-VR2
VR 2 OUT
VR 2 IN
IC2201 RC4560DD
TP2201
TP2202
E2201
VR 1 OUT 16B
HA 1 OUT 14A
RG-HA 1 14B
VR 2 OUT 16D
HA 2 OUT 13C
RG-HA 2 13D
ICD4 HC27 (1/3)
ICD4 (2/3) HC27
ICD5 HC02 (1/4)
ICD5 (2/4) HC02
ICC5 HC11 (3/3)
CC5 C11 (1/3)
A1 MUTE
A2 MUTE
E-E
IC2301 RC4558DQ
IC2302 RC4558DQ
TP2301
TP2302
MT 1 OUT 21C
RG-MT 1 21D
VR 1 IN 16A
RG-VR 1 17A
MT 2 OUT 21A
RG-MT 2 21B
VR 2 IN 16C
RG-VR 2 17C
+15V
-15V
+5V
-5V
D5V

Analog Rec/Playback Amplifier

ARP-2 BOARD (2/5)

BOARD NO.1-627-107-11 & HIGHER
PCM-3348

Jack

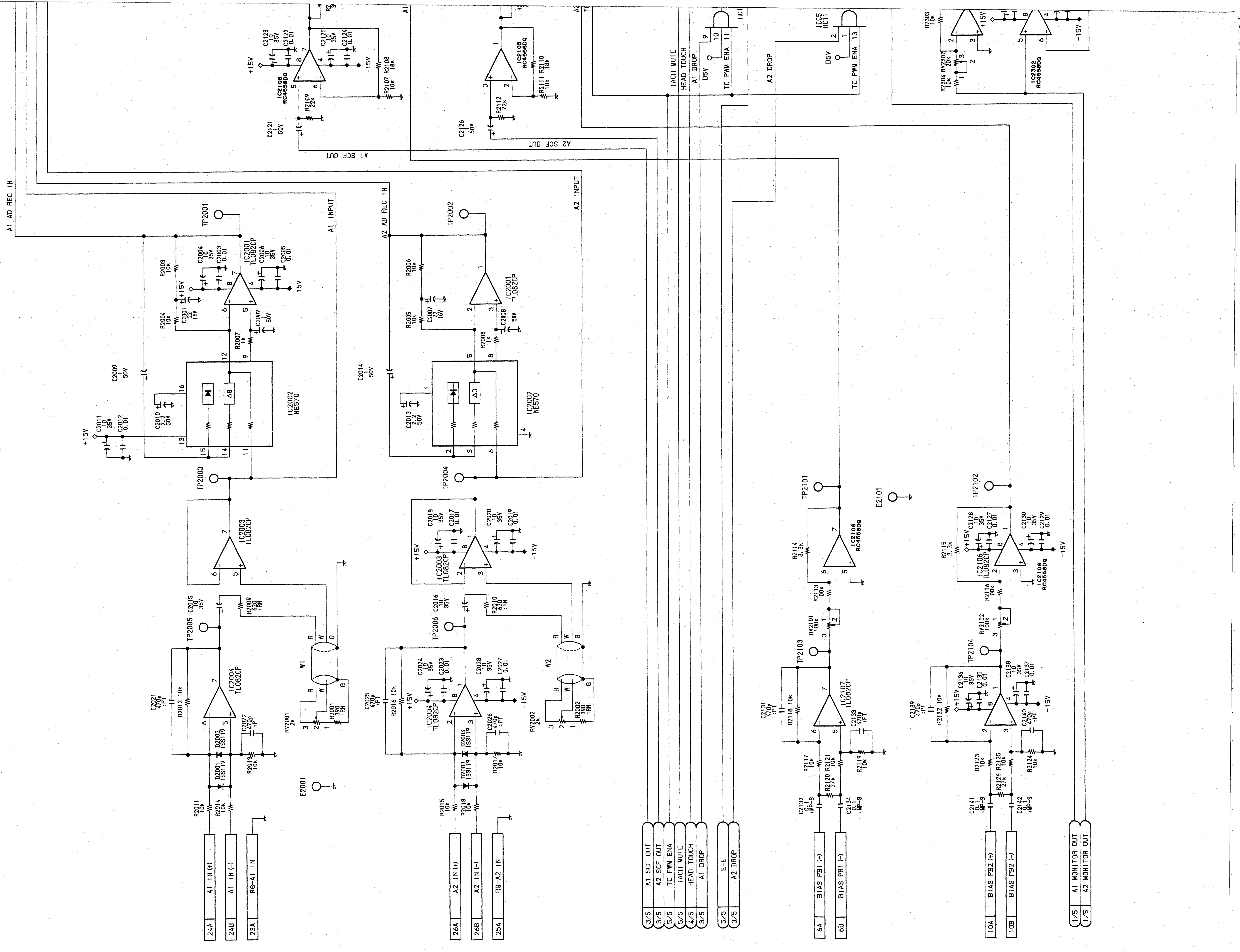
JK-23 BOARD

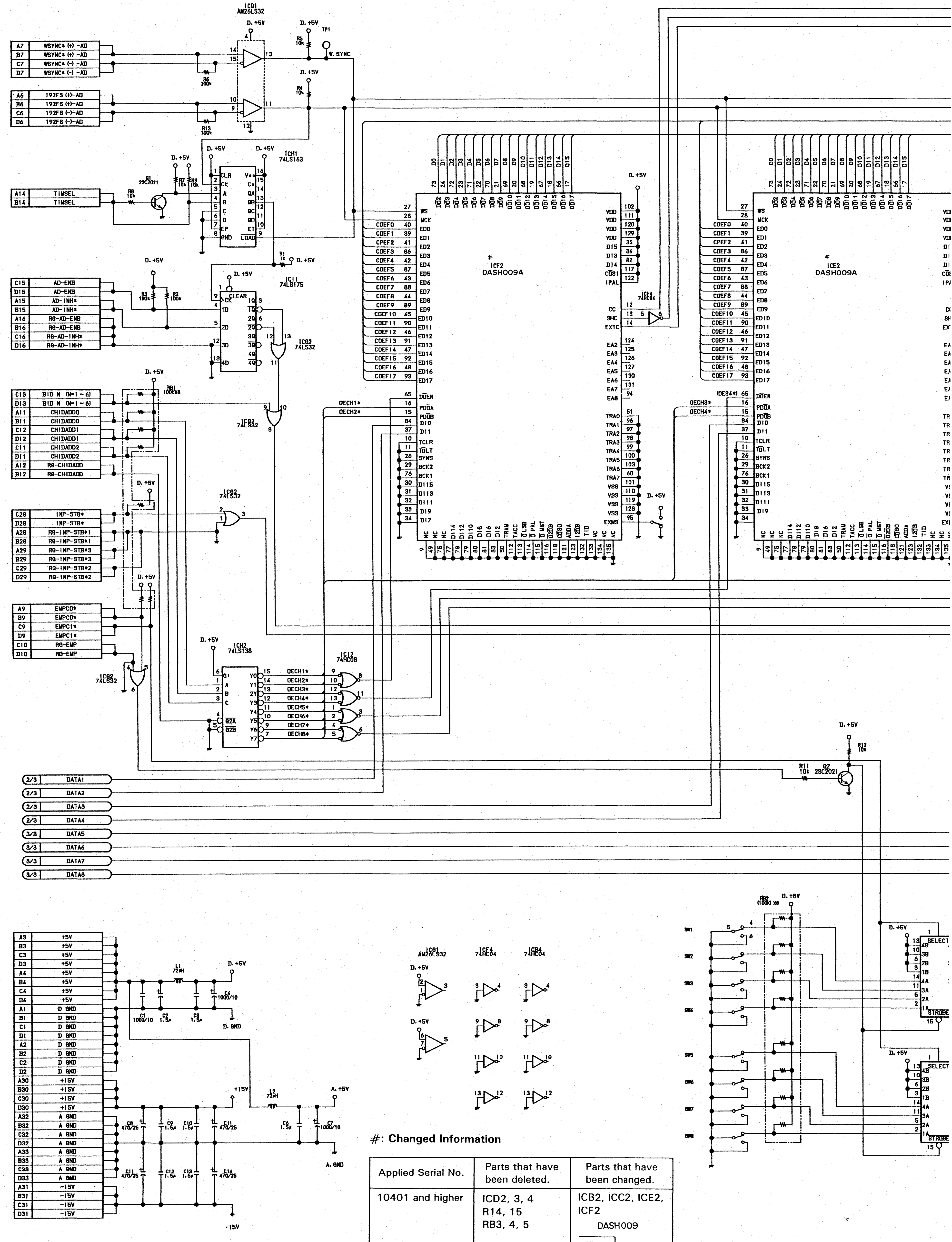
BOARD NO.1-627-141-11 & HIGHER
PCM-3348

Volume

VR-75 BOARD

BOARD NO.1-627-142-11 & HIGHER
PCM-3348

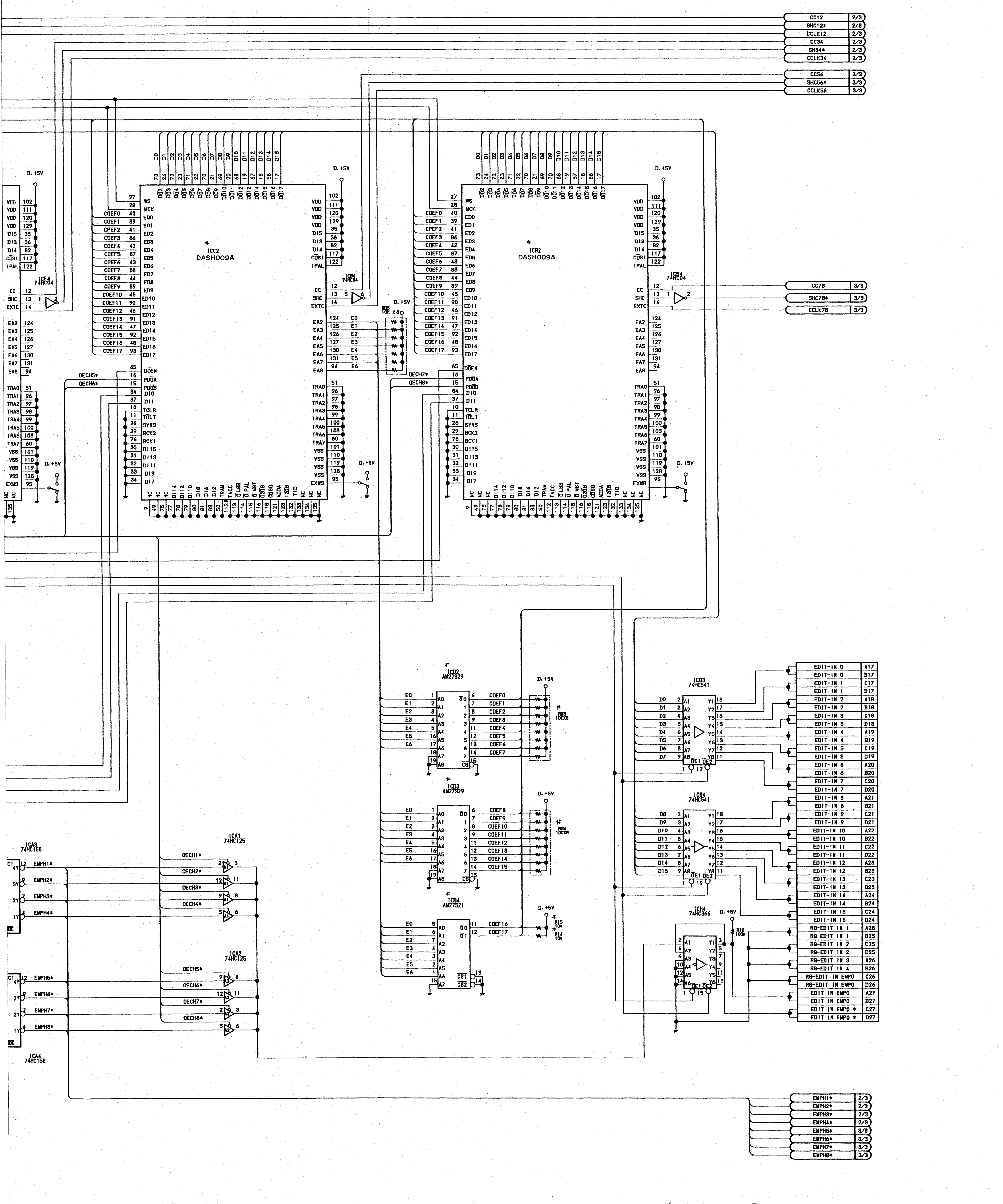

A1 AD REC IN
A1 INPUT
A2 AD REC IN
A2 INPUT
A1 SCF OUT
A2 SCF OUT
TACH MUTE
HEAD TOUCH
A1 DROP
A2 DROP
D5V
TC PWM ENA
IC2001 TL082CP
IC2002 NE570
IC2003 TL082CP
IC2004 TL082CP
IC2105 RC4558DQ
IC2106 RC4558DQ
IC2107 TL082CP
IC2302 RC4558DQ
ICC5 HC11
TP2001
TP2002
TP2003
TP2004
TP2005
TP2006
TP2101
TP2102
TP2103
TP2104
E2001
E2101
W1
W2
RV2001 2k
RV2002 2k
RV2101 100k
RV2102 100k
D2001 1SS119
D2002 1SS119
D2003 1SS119
D2004 1SS119
+15V
-15V
A1 IN (+)
A1 IN (-)
RG-A1 IN
24A
24B
23A
A2 IN (+)
A2 IN (-)
RG-A2 IN
26A
26B
25A
A1 SCF OUT 3/5
A2 SCF OUT 3/5
TC PWM ENA 5/5
TACH MUTE 5/5
HEAD TOUCH 4/5
A1 DROP 3/5
E-E 5/5
A2 DROP 3/5
BIAS PB1 (+) 6A
BIAS PB1 (-) 6B
BIAS PB2 (+) 10A
BIAS PB2 (-) 10B
A1 MONITOR OUT 1/5
A2 MONITOR OUT 1/5



A7 WSYNC* (+) -AD
B7 WSYNC* (+) -AD
C7 WSYNC* (-) -AD
D7 WSYNC* (-) -AD
A6 192FS (+)-AD
B6 192FS (+)-AD
C6 192FS (-)-AD
D6 192FS (-)-AD
ICG1 AM26LS32
D. +5V
TP1
W. SYNC
R5 10k
R4 10k
R6 100k
R13 100k
A14 TIMSEL
B14 TIMSEL
R8 10k
Q1 2SC2021
R7 10k
R9 10k
ICH1 74LS163
CLR
CK
A
B
C
D
EP
GND
Vcc
Co
QA
QB
QC
QD
ET
LOAD
R1 1k
C15 AD-ENB
D15 AD-ENB
A15 AD-INH*
B15 AD-INH*
A16 RG-AD-ENB
B16 RG-AD-ENB
C16 RG-AD-INH*
D16 RG-AD-INH*
R3 100k
R2 100k
ICI1 74LS175
CLEAR
ICG2 74LS32
C13 BID N (N=1~6)
D13 BID N (N=1~6)
A11 CHIDADD0
B11 CHIDADD0
C12 CHIDADD1
D12 CHIDADD1
C11 CHIDADD2
D11 CHIDADD2
A12 RG-CHIDADD
B12 RG-CHIDADD
RB1 100KX8
C28 INP-STB*
D28 INP-STB*
A28 RG-INP-STB*1
B28 RG-INP-STB*1
A29 RG-INP-STB*3
B29 RG-INP-STB*3
C29 RG-INP-STB*2
D29 RG-INP-STB*2
A9 EMPC0*
B9 EMPC0*
C9 EMPC1*
D9 EMPC1*
C10 RG-EMP
D10 RG-EMP
ICH2 74LS138
ICI2 74HC08
OECH1*
OECH2*
OECH3*
OECH4*
OECH5*
OECH6*
OECH7*
OECH8*
2/3 DATA1
2/3 DATA2
2/3 DATA3
2/3 DATA4
3/3 DATA5
3/3 DATA6
3/3 DATA7
3/3 DATA8
# ICF2 DASH009A
# ICE2 DASH009A
COEF0
COEF1
CPEF2
COEF3
COEF4
COEF5
COEF6
COEF7
COEF8
COEF9
COEF10
COEF11
COEF12
COEF13
COEF14
COEF15
COEF16
COEF17
D0 D1 D2 D3 D4 D5 D6 D7 D8 D9 D10 D11 D12 D13 D14 D15
WS
MCK
ED0
ED1
ED2
ED3
ED4
ED5
ED6
ED7
ED8
ED9
ED10
ED11
ED12
ED13
ED14
ED15
ED16
ED17
DOEN
PDOA
PDOB
DI0
DI1
TCLR
TOLT
SYNS
BCK2
BCK1
DI15
DI13
DI11
DI9
DI7
VDD
D15
D13
D14
COS1
IPAL
CC
SHC
EXTC
EA2
EA3
EA4
EA5
EA6
EA7
EA8
TRA0
TRA1
TRA2
TRA3
TRA4
TRA5
TRA6
TRA7
VSS
EXMS
NC
DI14
DI12
DI10
DI8
DI6
DI2
TRAM
TACC
O LSB
O PAL
O MST
O2OB
O3SO
ADDA
I2OB
TID
ICF4 74HC04
(OE34*)
D. +5V
R12 10k
R11 10k
Q2 2SC2021
RB2 1000 X8
SW1
SW2
SW3
SW4
SW5
SW6
SW7
SW8
SELECT
STROBE
A3 +5V
B3 +5V
C3 +5V
D3 +5V
A4 +5V
B4 +5V
C4 +5V
D4 +5V
A1 D GND
B1 D GND
C1 D GND
D1 D GND
A2 D GND
B2 D GND
C2 D GND
D2 D GND
A30 +15V
B30 +15V
C30 +15V
D30 +15V
A32 A GND
B32 A GND
C32 A GND
D32 A GND
A33 A GND
B33 A GND
C33 A GND
D33 A GND
A31 -15V
B31 -15V
C31 -15V
D31 -15V
L1 72μH
L2 72μH
C1 1000/10
C2 1.5μ
C3 1.5μ
C4 1000/10
C5 1.5μ
C6 1.5μ
C7 1000/10
C8 470/25
C9 1.5μ
C10 1.5μ
C11 470/25
C12 1.5μ
C13 1.5μ
C14 470/25
D. GND
A. +5V
A. GND
+15V
-15V
ICB1 AM26LS32
ICE4 74HC04
ICB4 74HC04

#: Changed Information

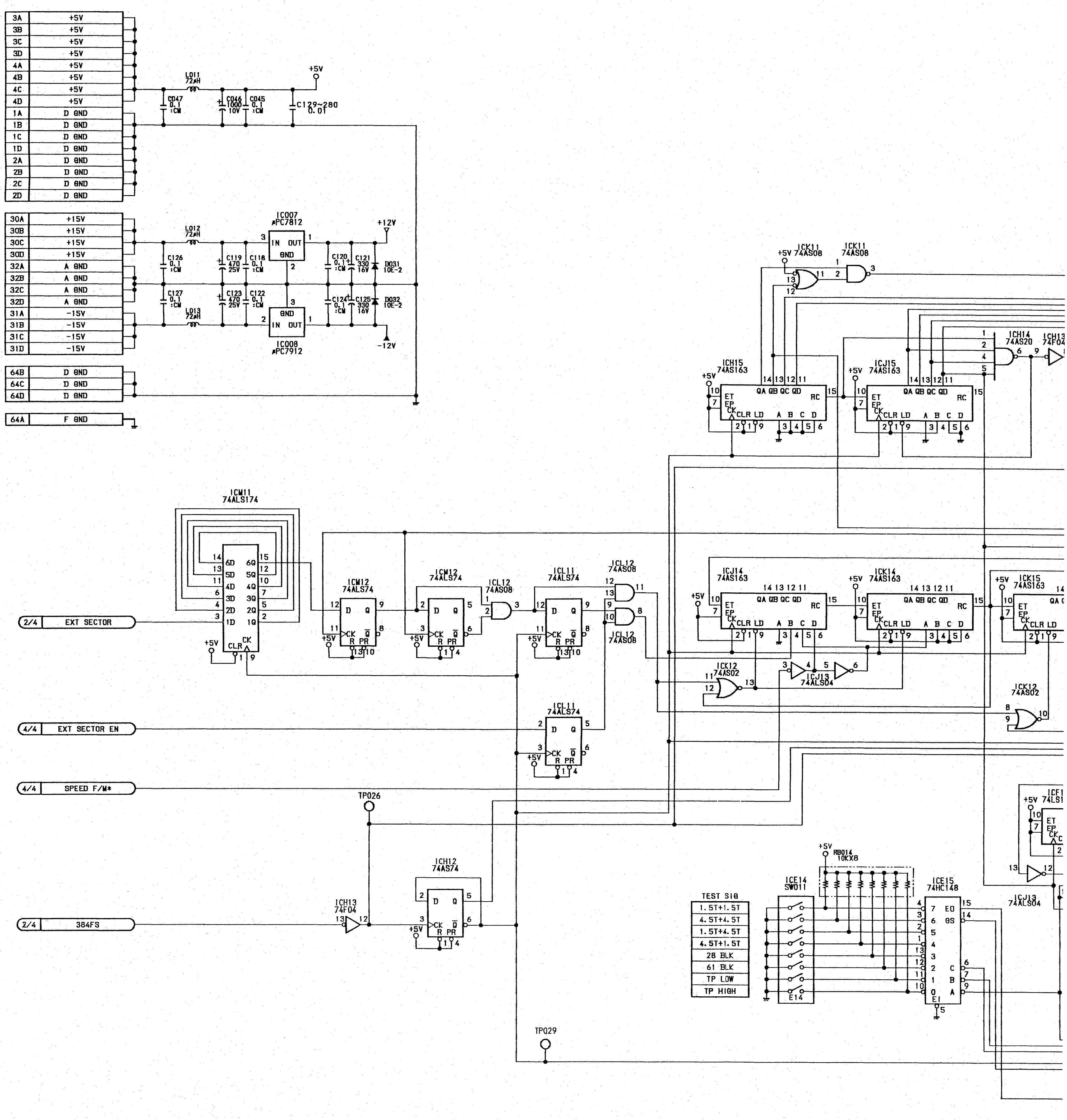
Applied Serial No.	Parts that have been deleted.	Parts that have been changed.
10401 and higher	ICD2, 3, 4 R14, 15 RB3, 4, 5	ICB2, ICC2, ICE2, ICF2 DASH009 DASH009 EXMS 95 D+5V ↓ DASH009A DASH009A EXMS 95 D+5V

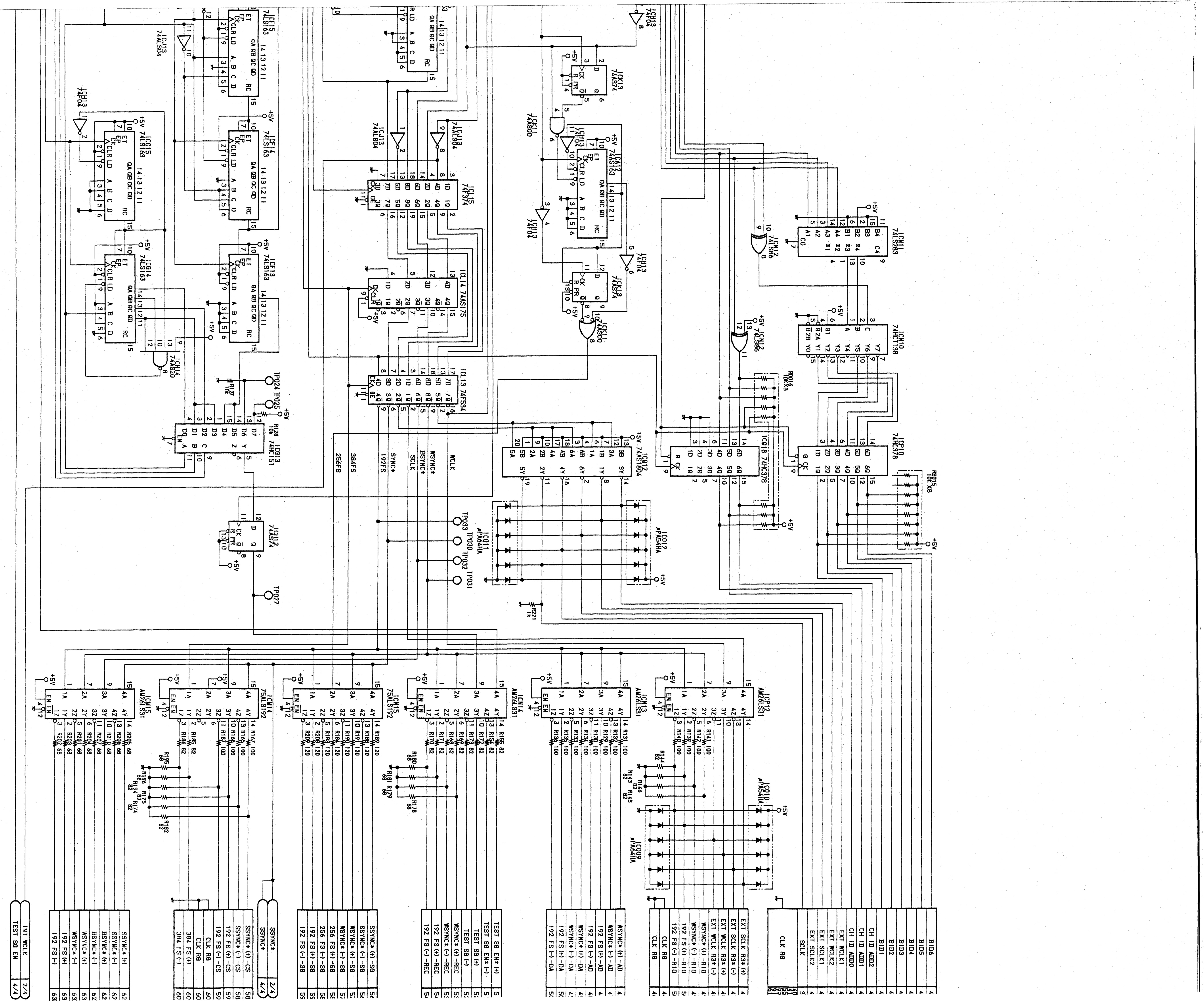

ICC2
DASH009A
ICB2
DASH009A
ICD2
AM27S29
ICD3
AM27S29
ICD4
AM27S21
ICB3
74HC541
ICB4
74HC541
ICH4
74HC366
ICA1
74HC125
ICA2
74HC125
ICA3
74HC158
ICA4
74HC158
ICE4
74HC04
ICB4
74HC04
RB5
10K x8
RB3
10Kx8
RB4
10Kx8
R15
10k
R14
10k
R10
100k
D.+5V
CC12 2/3
SHC12* 2/3
CCLK12 2/3
CC34 2/3
SH34* 2/3
CCLK34 2/3
CC56 3/3
SHC56* 3/3
CCLK56 3/3
CC78 3/3
SHC78* 3/3
CCLK78 3/3
EDIT-IN 0 A17
EDIT-IN 0 B17
EDIT-IN 1 C17
EDIT-IN 1 D17
EDIT-IN 2 A18
EDIT-IN 2 B18
EDIT-IN 3 C18
EDIT-IN 3 D18
EDIT-IN 4 A19
EDIT-IN 4 B19
EDIT-IN 5 C19
EDIT-IN 5 D19
EDIT-IN 6 A20
EDIT-IN 6 B20
EDIT-IN 7 C20
EDIT-IN 7 D20
EDIT-IN 8 A21
EDIT-IN 8 B21
EDIT-IN 9 C21
EDIT-IN 9 D21
EDIT-IN 10 A22
EDIT-IN 10 B22
EDIT-IN 11 C22
EDIT-IN 11 D22
EDIT-IN 12 A23
EDIT-IN 12 B23
EDIT-IN 13 C23
EDIT-IN 13 D23
EDIT-IN 14 A24
EDIT-IN 14 B24
EDIT-IN 15 C24
EDIT-IN 15 D24
R8-EDIT IN 1 A25
R8-EDIT IN 1 B25
R8-EDIT IN 2 C25
R8-EDIT IN 2 D25
R8-EDIT IN 3 A26
R8-EDIT IN 4 B26
R8-EDIT IN EMPO C26
R8-EDIT IN EMPO D26
EDIT IN EMPO A27
EDIT IN EMPO B27
EDIT IN EMPO * C27
EDIT IN EMPO * D27
EMPH1* 2/3
EMPH2* 2/3
EMPH3* 2/3
EMPH4* 2/3
EMPH5* 3/3
EMPH6* 3/3
EMPH7* 3/3
EMPH8* 3/3

Analog to Digital

AD-36 BOARD (1/3)

BOARD NO.1-625-487-12 & HIGHER
PCM-3348


3A +5V
3B +5V
3C +5V
3D +5V
4A +5V
4B +5V
4C +5V
4D +5V
1A D GND
1B D GND
1C D GND
1D D GND
2A D GND
2B D GND
2C D GND
2D D GND
30A +15V
30B +15V
30C +15V
30D +15V
32A A GND
32B A GND
32C A GND
32D A GND
31A -15V
31B -15V
31C -15V
31D -15V
64B D GND
64C D GND
64D D GND
64A F GND
L011 72μH
C047 0.1 :CM
C046 1000 10V
C045 0.1 :CM
C129~280 0.01
+5V
L012 72μH
L013 72μH
C126 0.1 :CM
C127 0.1 :CM
C119 470 25V
C118 0.1 :CM
C123 470 25V
C122 0.1 :CM
IC007 μPC7812
IC008 μPC7912
IN OUT GND
C120 0.1 :CM
C121 330 16V
C124 0.1 :CM
C125 330 16V
D031 10E-2
D032 10E-2
+12V
-12V
ICM11 74ALS174
2/4 EXT SECTOR
4/4 EXT SECTOR EN
4/4 SPEED F/M*
2/4 384FS
ICM12 74ALS74
ICM12 74ALS74
ICL12 74AS08
ICL11 74ALS74
ICL11 74ALS74
ICL12 74AS08
ICL12 74AS08
ICH12 74AS74
ICH13 74F04
TP026
TP029
ICK11 74AS08
ICK11 74AS08
ICH15 74AS163
ICJ15 74AS163
ICH14 74AS20
ICH13 74F04
ICJ14 74AS163
ICK14 74AS163
ICK15 74AS163
ICK12 74AS02
ICJ13 74ALS04
ICK12 74AS02
ICF1 74LS1
ICJ13 74ALS04
TEST S18
1.5T+1.5T
4.5T+4.5T
1.5T+4.5T
4.5T+1.5T
28 BLK
61 BLK
TP LOW
TP HIGH
ICE14 SW011
E14
RB014 10K×8
ICE15 74HC148
EO GS EI
+5V

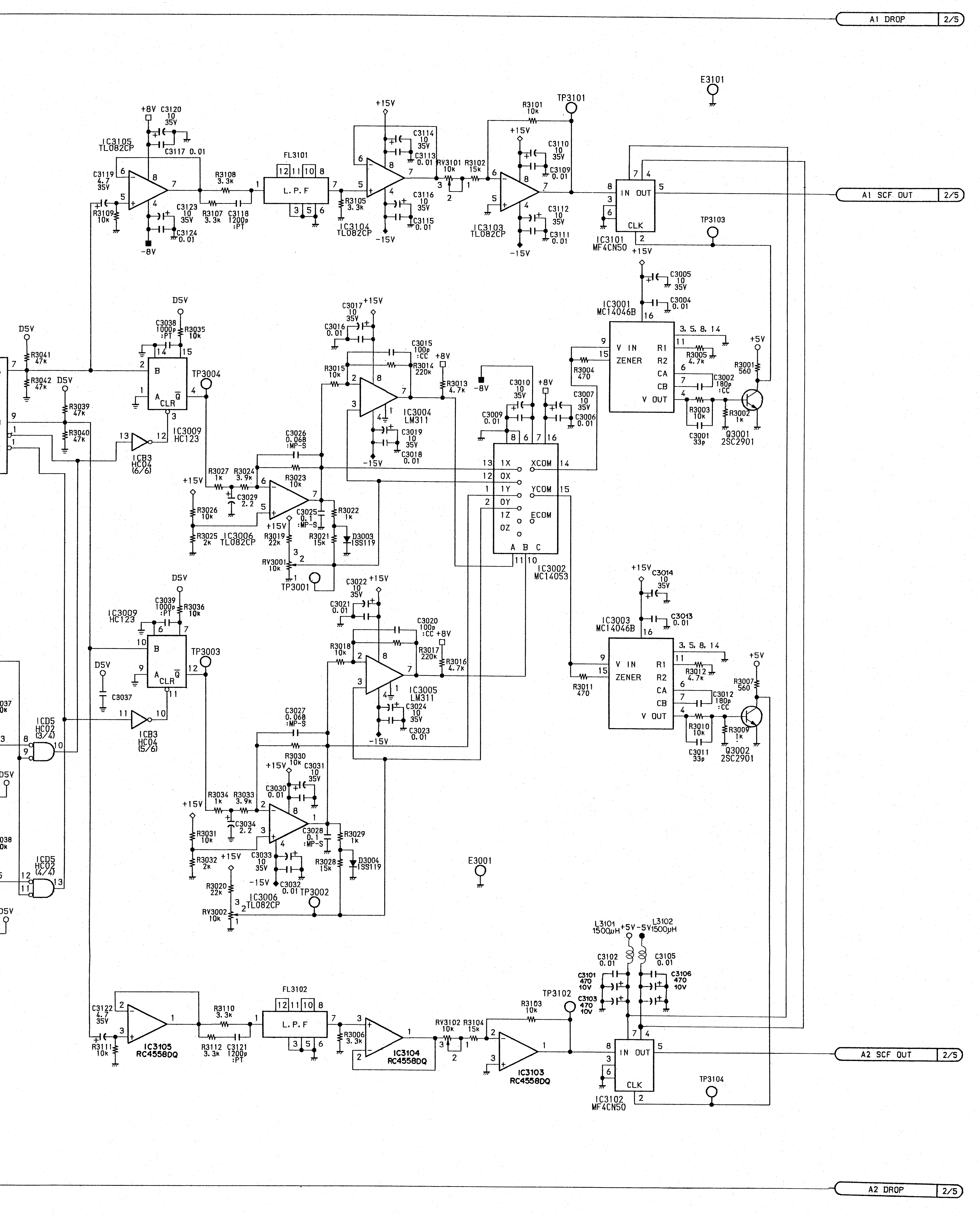


IC F15 74LS163
IC F14 74ALS163
IC F13 74ALS163
IC G15 74LS163
IC G14 74LS163
IC H13 74ALS04
IC H12 74F04
IC H14 74AS20
IC G13 74HC151
IC H12 74AS74
IC J13 74ALS04
IC L15 74F374
IC L14 74AS175
IC L13 74F534
IC K13 74AS74
IC K11 74AS00
IC A12 74AS163
IC H13 74F04
IC N11 74LS283
IC N12 74LS86
IC N10 74HC138
IC Q18 74HC378
IC P10 74HC378
IC Q12 74AS1804
IC D11 #PA64HA
IC D12 #PA54HA
IC D10 #PA54HA
IC D09 #PA64HA
RB016 10K×8
RB015 10K×8
IC M15 AM26LS31
IC M14 75ALS192
IC N15 75ALS192
IC N14 AM26LS31
IC N13 AM26LS31
IC P12 AM26LS31
TP024
TP025
TP027
TP033
TP030
TP032
TP031
256FS
384FS
192FS
SYNC*
SCLK
BSYNC*
WSYNC*
WCLK
+5V
TEST SB EN
INT WCLK
192 FS (-)
192 FS (+)
WSYNC* (-)
WSYNC* (+)
BSYNC* (-)
BSYNC* (+)
SSYNC* (-)
SSYNC* (+)
384 FS (-)
CLK RB
192 FS (+) -CS
192 FS (-) -CS
SSYNC* (+) -CS
SSYNC* (-) -CS
SSYNC*
192 FS (+) -SB
192 FS (-) -SB
256 FS (+) -SB
256 FS (-) -SB
WSYNC* (+) -SB
WSYNC* (-) -SB
SSYNC* (+) -SB
SSYNC* (-) -SB
192 FS (-) -REC
192 FS (+) -REC
WSYNC* (-) -REC
WSYNC* (+) -REC
TEST SB (-)
TEST SB (+)
TEST SB EN* (-)
TEST SB EN* (+)
192 FS (-) -DA
192 FS (+) -DA
WSYNC* (-) -DA
WSYNC* (+) -DA
192 FS (-) -AD
192 FS (+) -AD
WSYNC* (-) -AD
WSYNC* (+) -AD
192 FS (-) -RIO
192 FS (+) -RIO
WSYNC* (-) -RIO
WSYNC* (+) -RIO
EXT WCLK R3* (-)
EXT WCLK R3* (+)
EXT SCLK R3* (-)
EXT SCLK R3* (+)
CLK RB
SCLK
EXT SCLK2
EXT SCLK1
EXT WCLK2
EXT WCLK1
CH ID ADD0
CH ID ADD1
CH ID ADD2
BID1
BID2
BID3
BID4
BID5
BID6

Clock Generator

CK-31 BOARD (3/4)

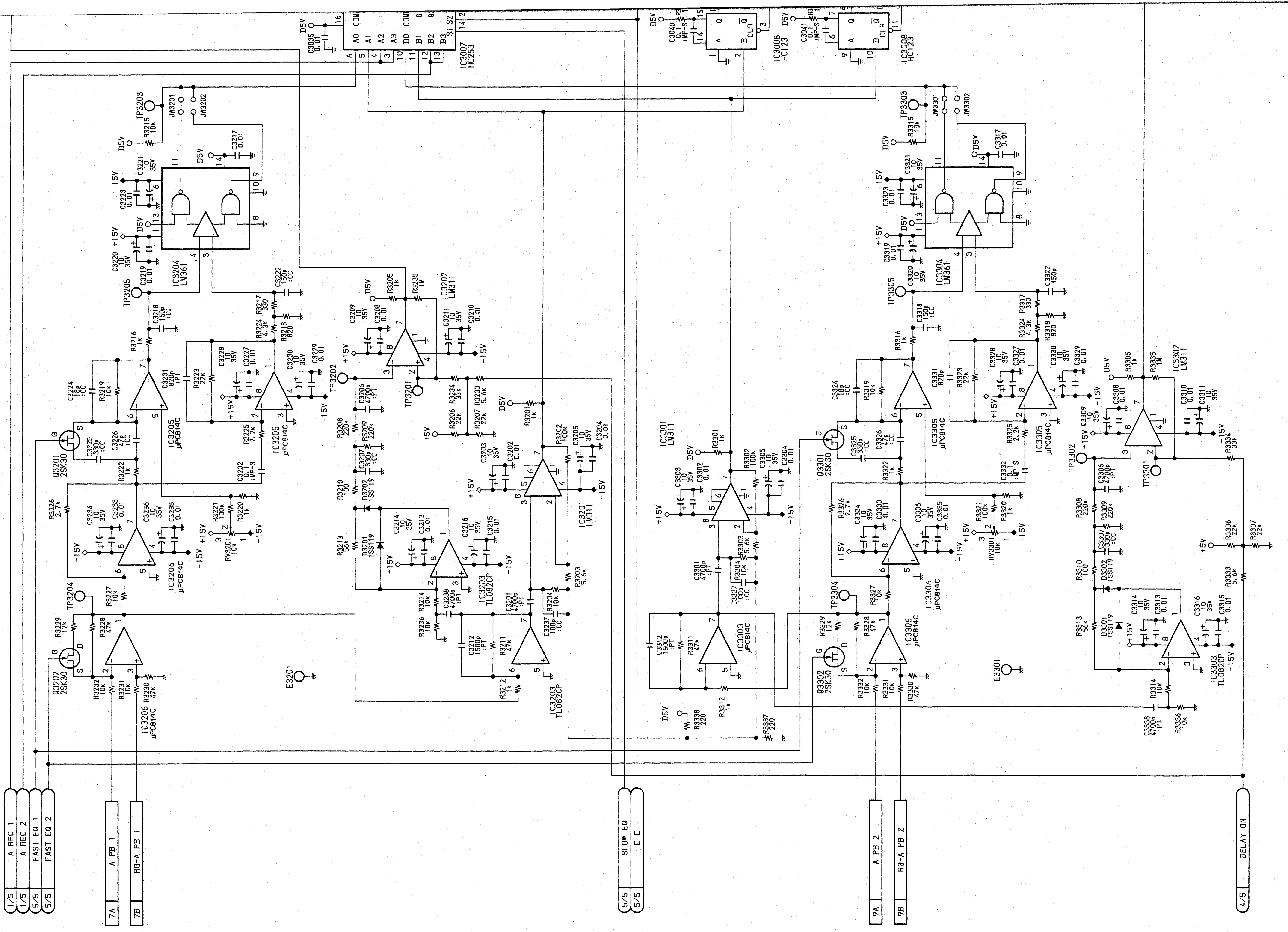
BOARD NO.1-627-113-11 & HIGHER
PCM-3348


A1 DROP 2/5
A1 SCF OUT 2/5
A2 SCF OUT 2/5
A2 DROP 2/5
E3101
E3001
TP3101
TP3102
TP3103
TP3104
TP3001
TP3002
TP3003
TP3004
IC3101 MF4CN50
IC3102 MF4CN50
IC3001 MC14046B
IC3003 MC14046B
IC3002 MC14053
IC3103 TL082CP
IC3104 TL082CP
IC3105 TL082CP
IC3103 RC4558DQ
IC3104 RC4558DQ
IC3105 RC4558DQ
IC3004 LM311
IC3005 LM311
IC3006 TL082CP
IC3009 HC123
ICB3 HC04 (6/6)
ICB3 HC04 (5/6)
ICD5 HC02 (3/4)
ICD5 HC02 (4/4)
Q3001 2SC2901
Q3002 2SC2901
FL3101 L.P.F
FL3102 L.P.F
L3101 1500μH
L3102 1500μH
+5V -5V
+15V
-15V
+8V
-8V
D5V
IN OUT CLK
V IN ZENER R1 R2 CA CB V OUT
XCOM YCOM ECOM 1X 0X 1Y 0Y 1Z 0Z A B C
B A CLR Q̄
3, 5, 8, 14
R3101 10k
R3102 15k
RV3101 10k
R3105 3.3k
R3107 3.3k
R3108 3.3k
R3109 10k
R3103 10k
R3104 15k
RV3102 10k
R3006 3.3k
R3110 3.3k
R3112 3.3k
R3111 10k
R3001 560
R3002 1k
R3003 10k
R3004 470
R3005 4.7k
R3007 560
R3009 1k
R3010 10k
R3011 470
R3012 4.7k
R3013 4.7k
R3014 220k
R3015 10k
R3016 4.7k
R3017 220k
R3018 10k
R3019 22k
R3020 22k
R3021 15k
R3022 1k
R3023 10k
R3024 3.9k
R3025 2k
R3026 10k
R3027 1k
R3028 15k
R3029 1k
R3030 10k
R3031 10k
R3032 2k
R3033 3.9k
R3034 1k
R3035 10k
R3036 10k
R3039 47k
R3040 47k
R3041 47k
R3042 47k
RV3001 10k
RV3002 10k
D3003 1SS119
D3004 1SS119
C3001 33p
C3002 180p :CC
C3004 0.01
C3005 10 35V
C3006 0.01
C3007 10 35V
C3009 0.01
C3010 10 35V
C3011 33p
C3012 180p :CC
C3013 0.01
C3014 10 35V
C3015 100p :CC
C3016 0.01
C3017 10 35V
C3018 0.01
C3019 10 35V
C3020 100p :CC
C3021 0.01
C3022 10 35V
C3023 0.01
C3024 10 35V
C3025 0.1 :MP-S
C3026 0.068 :MP-S
C3027 0.068 :MP-S
C3028 0.1 :MP-S
C3029 2.2
C3030 0.01
C3031 10 35V
C3032 0.01
C3033 10 35V
C3034 2.2
C3037
C3038 1000p :PT
C3039 1000p :PT
C3101 470 10V
C3102 0.01
C3103 470 10V
C3105 0.01
C3106 470 10V
C3109 0.01
C3110 10 35V
C3111 0.01
C3112 10 35V
C3113 0.01
C3114 10 35V
C3115 0.01
C3116 10 35V
C3117 0.01
C3118 1200p :PT
C3119 4.7 35V
C3120 10 35V
C3121 1200p :PT
C3122 4.7 35V
C3123 10 35V
C3124 0.01

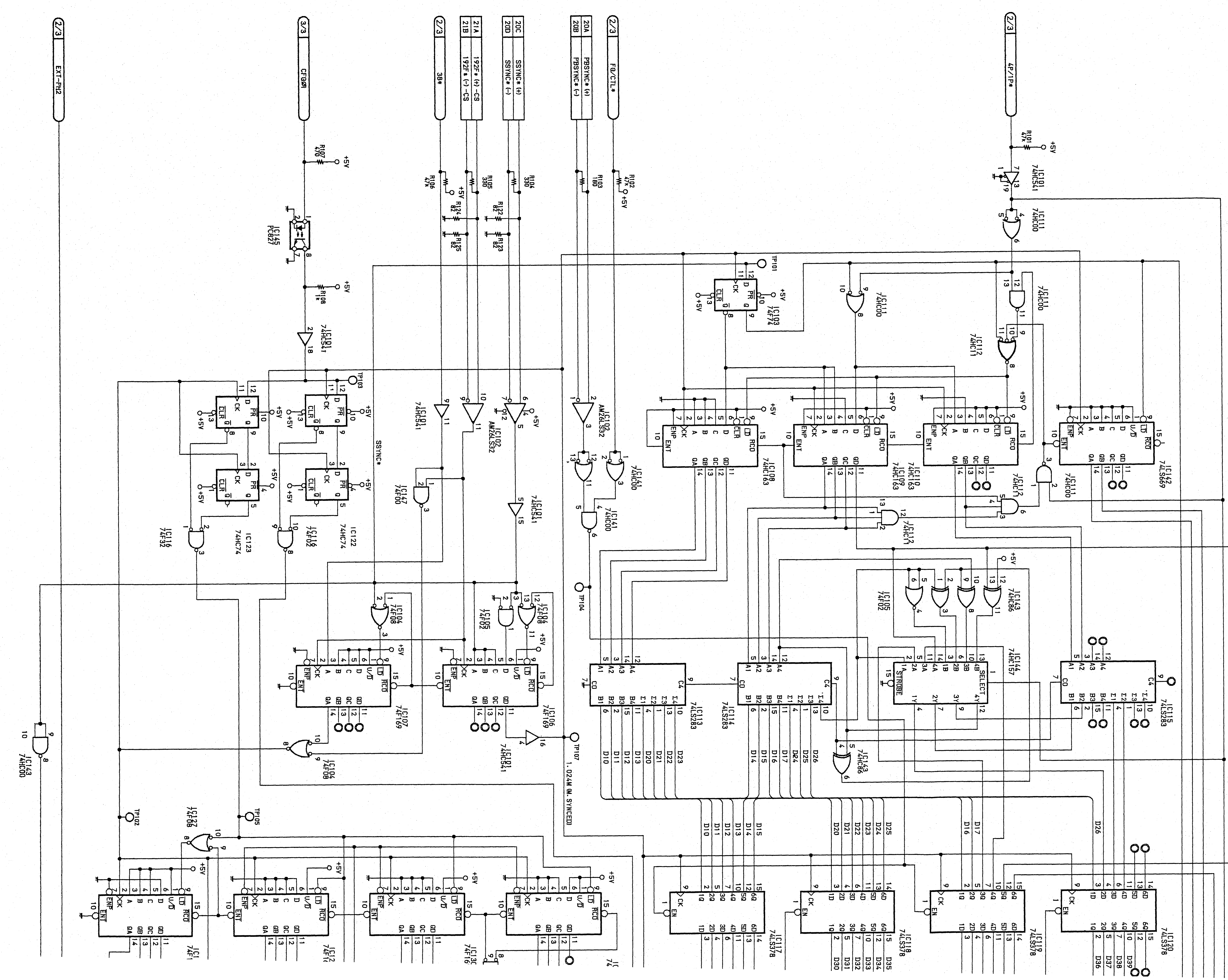
Analog Rec/Playback Amplifier

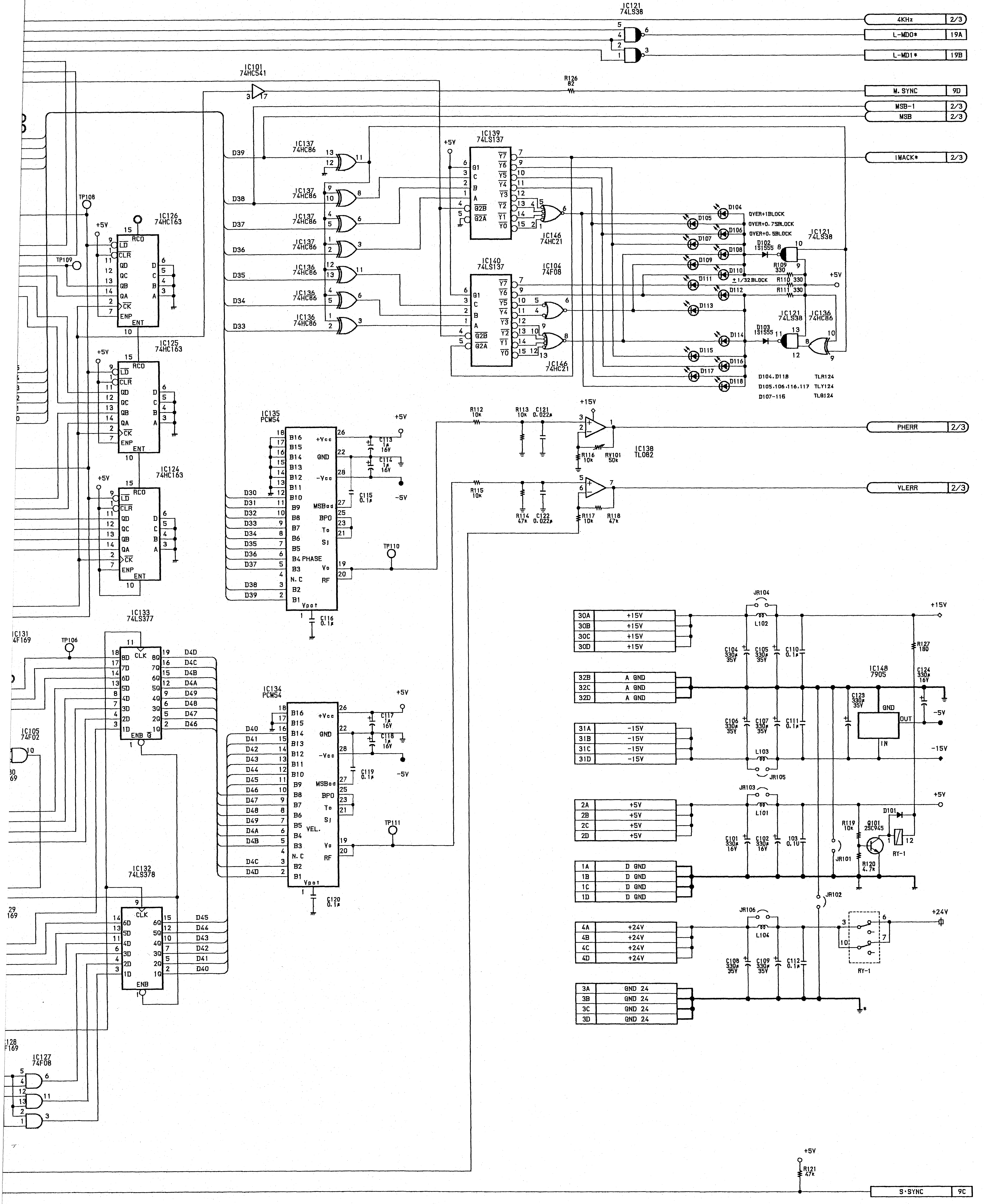
ARP-2 BOARD (3/5)

BOARD NO. 1-627-107-11
PCM-3348



A REC 1
A REC 2
FAST EQ 1
FAST EQ 2
1/5
1/5
5/5
5/5
A PB 1
7A
RG-A PB 1
7B
SLOW EQ
E-E
5/5
5/5
A PB 2
9A
RG-A PB 2
9B
DELAY ON
4/5
IC3007 HC253
IC3008 HC123
IC3008 HC123
IC3204 LM361
IC3205 µPC814C
IC3202 LM311
IC3201 LM311
IC3203 TL082CP
IC3206 µPC814C
IC3301 LM311
IC3302 LM311
IC3303 µPC814C
IC3303 TL082CP
IC3304 LM361
IC3305 µPC814C
IC3306 µPC814C
Q3201 2SK30
Q3202 2SK30
Q3301 2SK30
Q3302 2SK30
D3201 1SS119
D3202 1SS119
D3301 1SS119
D3302 1SS119
RV3201 10k
RV3301 10k
TP3201
TP3202
TP3203
TP3204
TP3205
TP3301
TP3302
TP3303
TP3304
TP3305
JW3201
JW3202
JW3301
JW3302
E3201
E3301
D5V
+15V
-15V
+5V


2/3
EXT-PH2
3/3
CFD0M
2/3
3B*
21A
21B
192F* (+)-CS
192F* (-)-CS
20C
20D
SSYNC* (+)
SSYNC* (-)
20A
20B
PBSYNC* (+)
PBSYNC* (-)
2/3
FG/CTL*
2/3
4P/1P*
R107 470
R108 1k
IC145 PC827
IC101 74HC541
R106 47k
R105 330
R104 330
R124 82
R125 82
R122 82
R123 82
R103 180
R102 47k
R101 47k
IC102 AM26LS32
IC141 74HC00
IC111 74HC00
IC112 74HC11
IC103 74F74
IC108 74HC163
IC109 74HC163
IC110 74HC163
IC142 74LS669
IC123 74HC74
IC122 74HC74
IC116 74F32
IC118 74F02
IC147 74F00
SSYNC*
IC104 74F08
IC105 74F02
IC106 74F169
IC107 74F169
IC143 74HC86
IC144 74HC157
IC113 74LS283
IC114 74LS283
IC115 74LS283
IC143 74HC00
IC127 74F08
IC117 74LS378
IC118 74LS378
IC119 74LS378
IC120 74LS378
TP101
TP102
TP103
TP104
TP105
TP107
1.024M (M.SYNCED)
+5V
D10
D11
D12
D13
D14
D15
D16
D17
D20
D21
D22
D23
D24
D25
D26
D30
D31
D32
D33
D34
D35
D36
D37
D38
D39

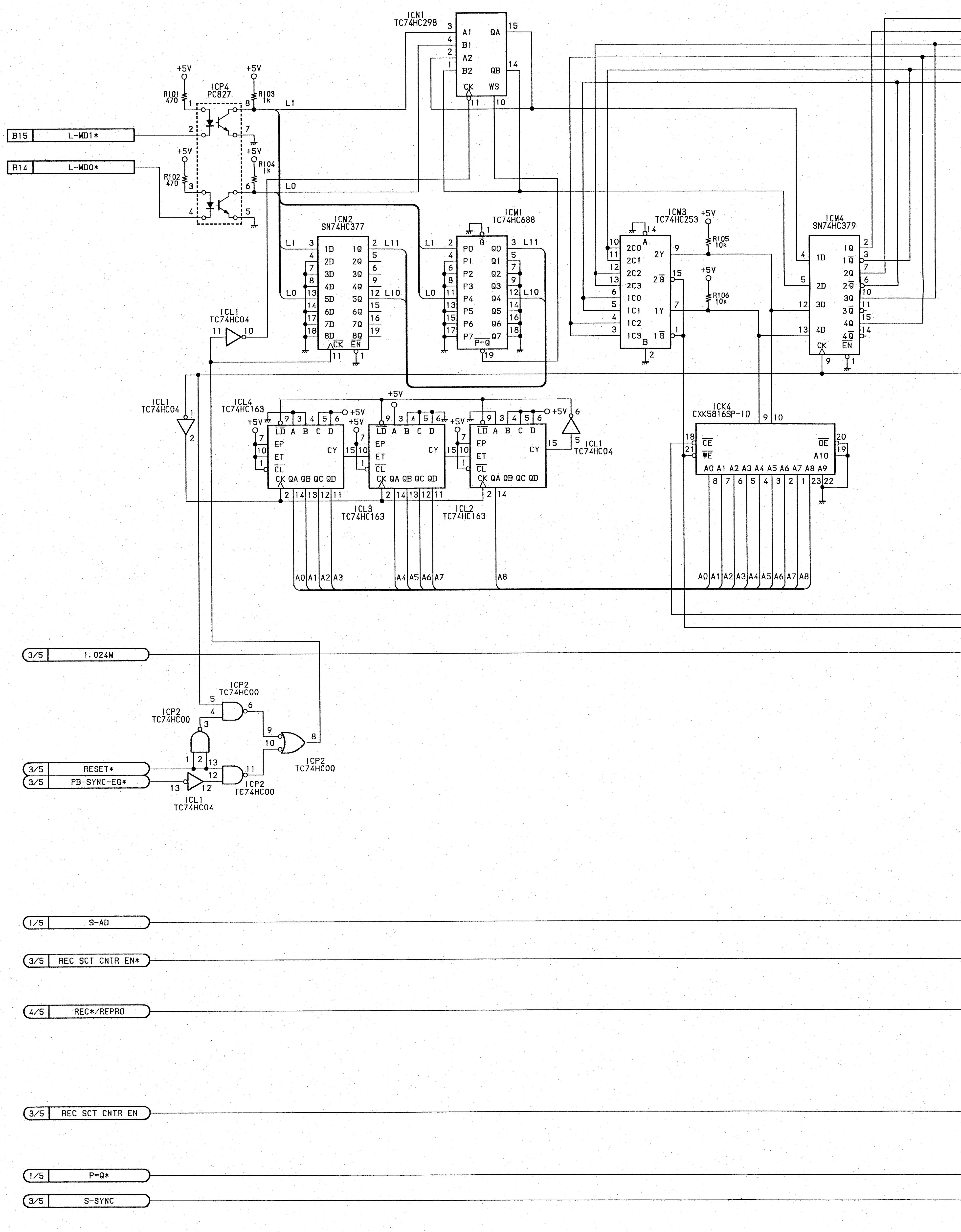

IC121 74LS38
4KHz 2/3
L-MDO* 19A
L-MD1* 19B
IC101 74HC541
R126 82
M. SYNC 9D
MSB-1 2/3
MSB 2/3
IMACK* 2/3
IC139 74LS137
IC140 74LS137
IC137 74HC86
IC136 74HC86
IC146 74HC21
IC104 74F08
IC121 74LS38
IC136 74HC86
D102 1S1555
D103 1S1555
OVER+1BLOCK
OVER+0.75BLOCK
OVER+0.5BLOCK
±1/32BLOCK
D104,D118 TLR124
D105,106,116,117 TLY124
D107-116 TLG124
IC126 74HC163
IC125 74HC163
IC124 74HC163
TP108
TP109
TP106
TP110
TP111
IC135 PCM54
IC134 PCM54
PHASE
VEL.
IC138 TL082
RV101 50k
PHERR 2/3
VLERR 2/3
IC133 74LS377
IC132 74LS378
IC131 74F169
IC105 74F02
IC127 74F08
IC128 74F169
IC148 7905
+15V
-15V
+5V
-5V
+24V
A GND
D GND
GND 24
Q101 2SC945
RY-1
JR101
JR102
JR103
JR104
JR105
JR106
R121 47k
S-SYNC 9C

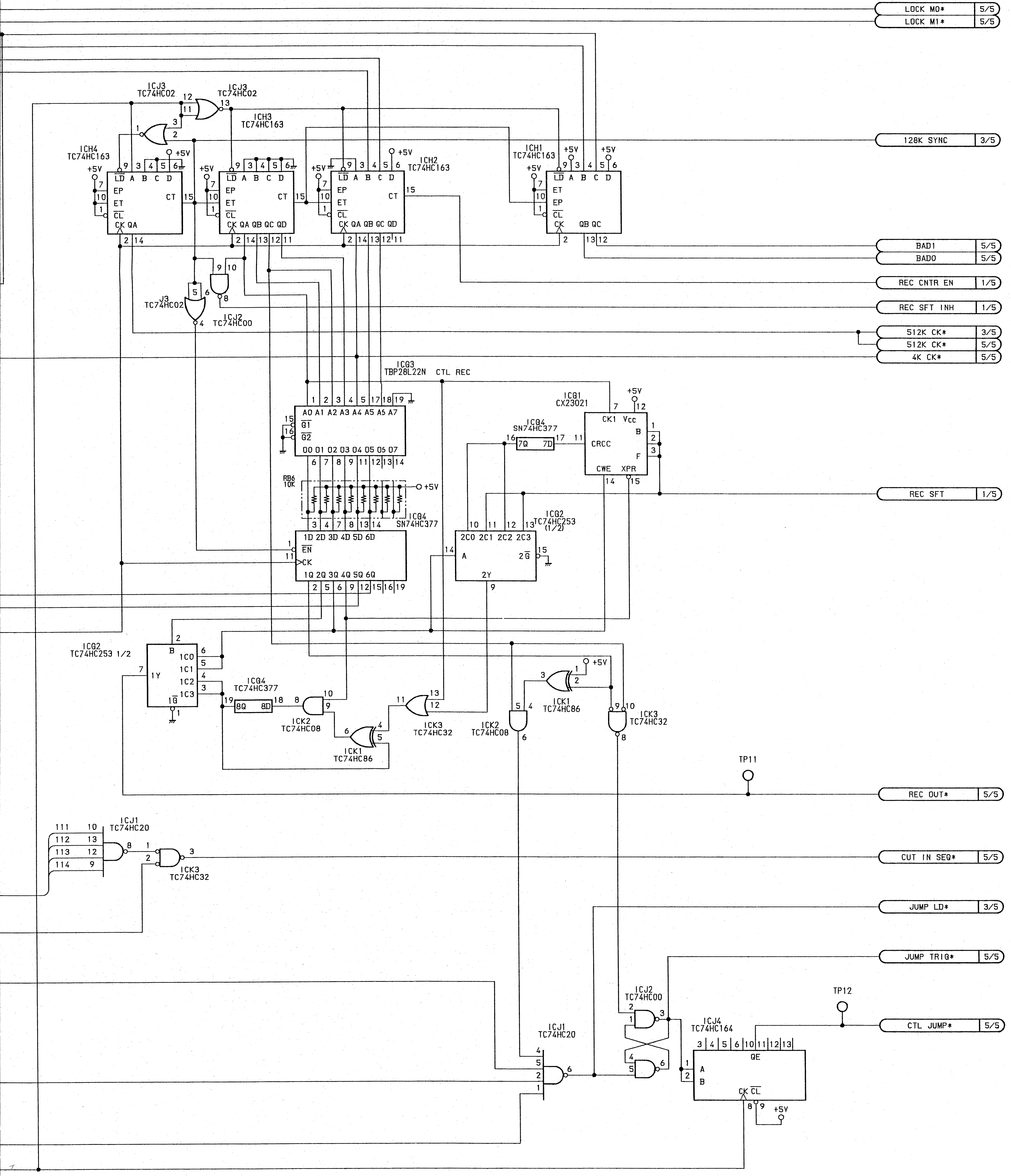
Capstan Servo

CS-24 BOARD (1/3)

BOARD NO.1-627-099-11 & HIGHER

PCM-3348

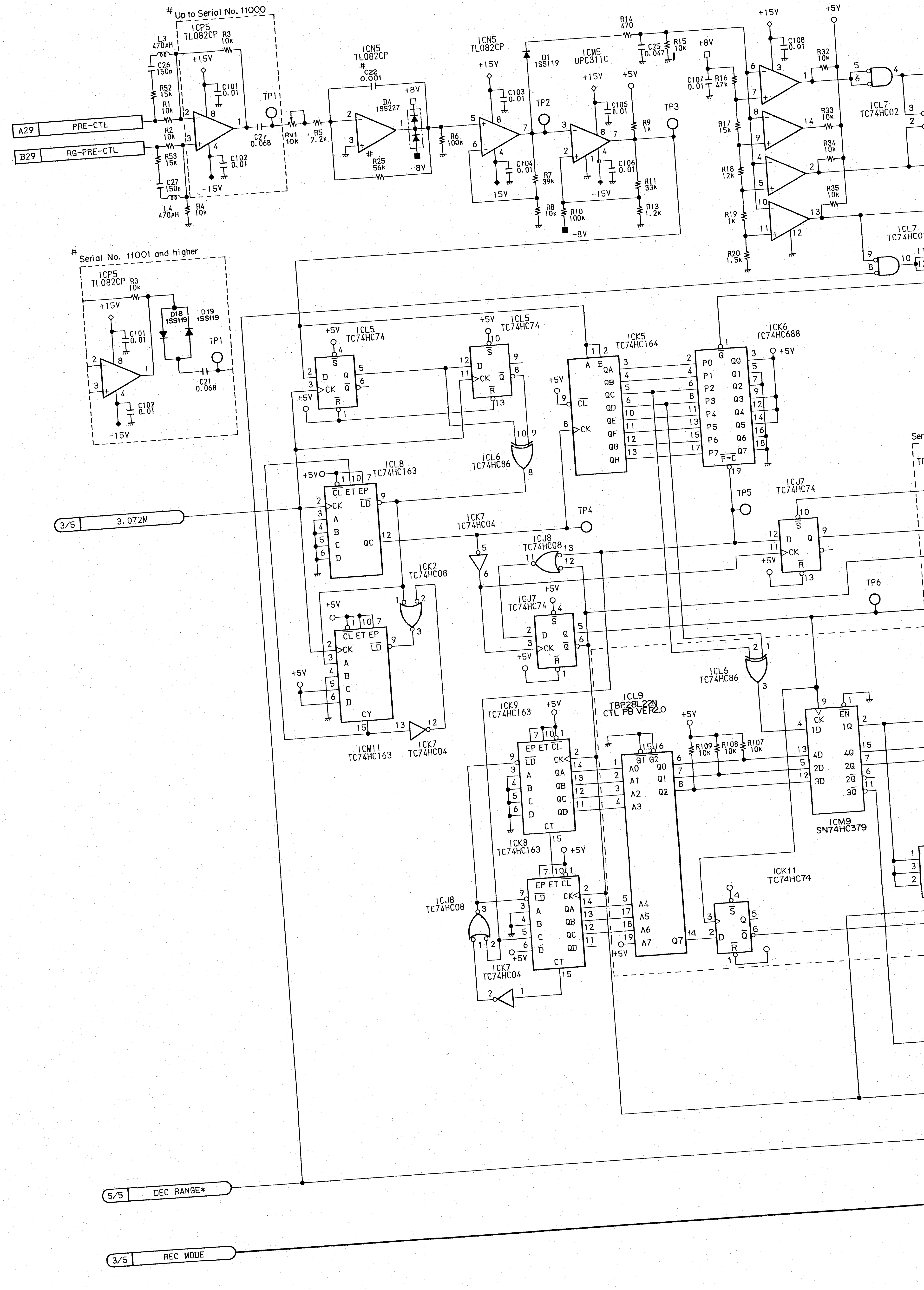

ICN1
TC74HC298
A1
B1
A2
B2
CK
QA
QB
WS
+5V
R101
470
R102
470
R103
1k
R104
1k
ICP4
PC827
L1
L0
B15
L-MD1*
B14
L-MD0*
ICM2
SN74HC377
1D
2D
3D
4D
5D
6D
7D
8D
CK
1Q
2Q
3Q
4Q
5Q
6Q
7Q
8Q
EN
L11
L10
ICM1
TC74HC688
G
P0
P1
P2
P3
P4
P5
P6
P7
Q0
Q1
Q2
Q3
Q4
Q5
Q6
Q7
P=Q
ICM3
TC74HC253
A
B
2C0
2C1
2C2
2C3
1C0
1C1
1C2
1C3
2Y
1Y
2G
1G
R105
10k
R106
10k
ICM4
SN74HC379
1D
2D
3D
4D
CK
1Q
2Q
3Q
4Q
EN
ICL1
TC74HC04
ICL4
TC74HC163
ICL3
TC74HC163
ICL2
TC74HC163
LD
A
B
C
D
EP
ET
CL
CY
CK
QA
QB
QC
QD
ICK4
CXK5816SP-10
CE
WE
OE
A10
A0 A1 A2 A3 A4 A5 A6 A7 A8 A9
A0
A1
A2
A3
A4
A5
A6
A7
A8
3/5
1.024M
ICP2
TC74HC00
3/5
RESET*
3/5
PB-SYNC-EG*
1/5
S-AD
3/5
REC SCT CNTR EN*
4/5
REC*/REPRO
3/5
REC SCT CNTR EN
1/5
P=Q*
3/5
S-SYNC


LOCK MO* 5/5
LOCK M1* 5/5
128K SYNC 3/5
BAD1 5/5
BAD0 5/5
REC CNTR EN 1/5
REC SFT INH 1/5
512K CK* 3/5
512K CK* 5/5
4K CK* 5/5
REC SFT 1/5
REC OUT* 5/5
CUT IN SEQ* 5/5
JUMP LD* 3/5
JUMP TRIG* 5/5
CTL JUMP* 5/5
TP11
TP12
ICJ3 TC74HC02
ICH4 TC74HC163
ICH3 TC74HC163
ICH2 TC74HC163
ICH1 TC74HC163
J3 TC74HC02
ICJ2 TC74HC00
ICG3 TBP28L22N
CTL REC
ICG1 CX23021
ICG4 SN74HC377
RB6 10K
ICG2 TC74HC253 (1/2)
ICG2 TC74HC253 1/2
ICG4 TC74HC377
ICK2 TC74HC08
ICK1 TC74HC86
ICK3 TC74HC32
ICJ1 TC74HC20
ICJ2 TC74HC00
ICJ4 TC74HC164
+5V
111
112
113
114

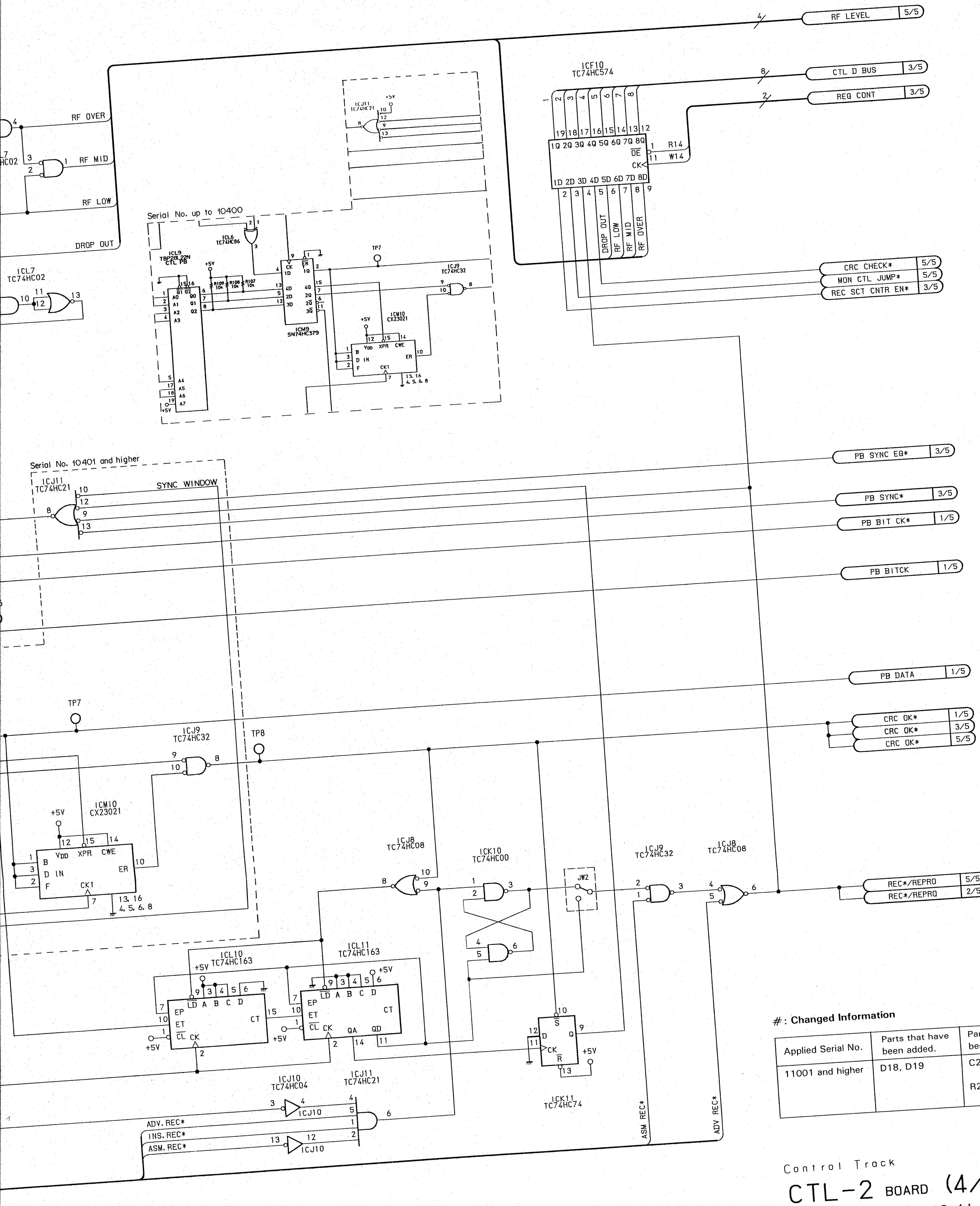
Control Track

CTL-2 BOARD (2/5)

BOARD NO.1-627-116-11 & HIGHER
PCM-3348



# Up to Serial No. 11000
ICP5
TL082CP
R3 10k
L3 470μH
C26 150p
R52 15k
R1 10k
R2 10k
R53 15k
C27 150p
L4 470μH
R4 10k
+15V
-15V
C101 0.01
C102 0.01
TP1
C2r 0.068
RV1 10k
R5 2.2k
A29
PRE-CTL
B29
RG-PRE-CTL
ICN5
TL082CP
# C22 0.001
D4 1SS227
+8V
-8V
# R25 56k
R6 100k
C103 0.01
C104 0.01
TP2
D1 1SS119
ICM5
UPC311C
C105 0.01
C106 0.01
R7 39k
R8 10k
R10 100k
R9 1k
R11 33k
R13 1.2k
TP3
R14 470
C25 0.047
R15 10k
+5V
C107 0.01
R16 47k
R17 15k
R18 12k
R19 1k
R20 1.5k
ICM7
UPC339
C108 0.01
R32 10k
R33 10k
R34 10k
R35 10k
ICL7
TC74HC02
# Serial No. 11001 and higher
D18 1SS119
D19 1SS119
C21 0.068
ICL5
TC74HC74
ICL6
TC74HC86
ICL8
TC74HC163
ICK5
TC74HC164
ICK6
TC74HC688
3/5
3.072M
ICK7
TC74HC04
TP4
TP5
ICJ8
TC74HC08
ICJ7
TC74HC74
TP6
ICK2
TC74HC08
ICM11
TC74HC163
ICL9
TBP28L22N
CTL PB VER2.0
R109 10k
R108 10k
R107 10k
ICK9
TC74HC163
ICK8
TC74HC163
ICM9
SN74HC379
ICK11
TC74HC74
5/5
DEC RANGE*
3/5
REC MODE


RF LEVEL 5/5
CTL D BUS 3/5
REG CONT 3/5
ICF10
TC74HC574
1Q 2Q 3Q 4Q 5Q 6Q 7Q 8Q
OE
CK
1D 2D 3D 4D 5D 6D 7D 8D
R14
W14
DROP OUT
RF LOW
RF MID
RF OVER
CRC CHECK* 5/5
MON CTL JUMP* 5/5
REC SCT CNTR EN* 3/5
ICL7
TC74HC02
Serial No. up to 10400
ICL9
TBP28L22N
CTL PB
ICL6
TC74HC86
R109 10k
R108 10k
R107 10k
ICM9
SN74HC379
ICM10
CX23021
ICJ9
TC74HC32
ICJ11
TC74HC21
TP7
+5V
Serial No. 10401 and higher
SYNC WINDOW
PB SYNC EQ* 3/5
PB SYNC* 3/5
PB BIT CK* 1/5
PB BITCK 1/5
PB DATA 1/5
CRC OK* 1/5
CRC OK* 3/5
CRC OK* 5/5
TP8
B
D IN
F
VDD
XPR
CWE
ER
CK1
13, 16
4, 5, 6, 8
ICJ8
TC74HC08
ICK10
TC74HC00
JW2
ICJ9
TC74HC32
ICJ8
TC74HC08
REC*/REPRO 5/5
REC*/REPRO 2/5
ICL10
TC74HC163
ICL11
TC74HC163
EP
ET
CL
CK
LD A B C D
CT
QA
QD
ICK11
TC74HC74
S
D
CK
R
Q
ICJ10
TC74HC04
ICJ11
TC74HC21
ADV. REC*
INS. REC*
ASM. REC*
ASM REC*
ADV REC*

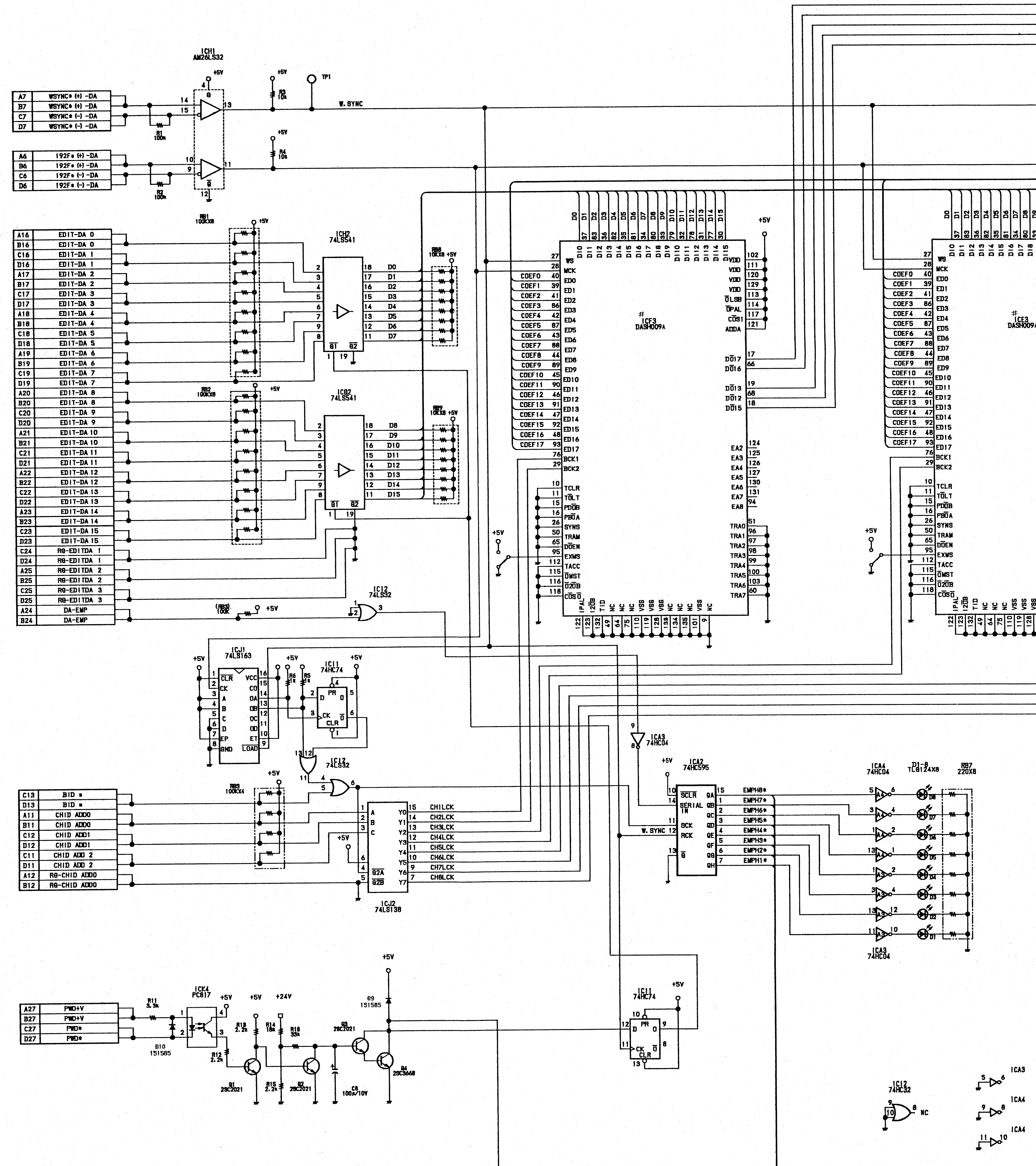
#: Changed Information

Applied Serial No.	Parts that have been added.	Parts that been chan
11001 and higher	D18, D19	C22 0.00 0.0 R25 56 k 22

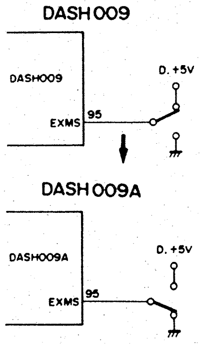
Control Track

CTL-2 BOARD (4/5)

BOARD NO.1-627-116-11 & HI
PCM-3348

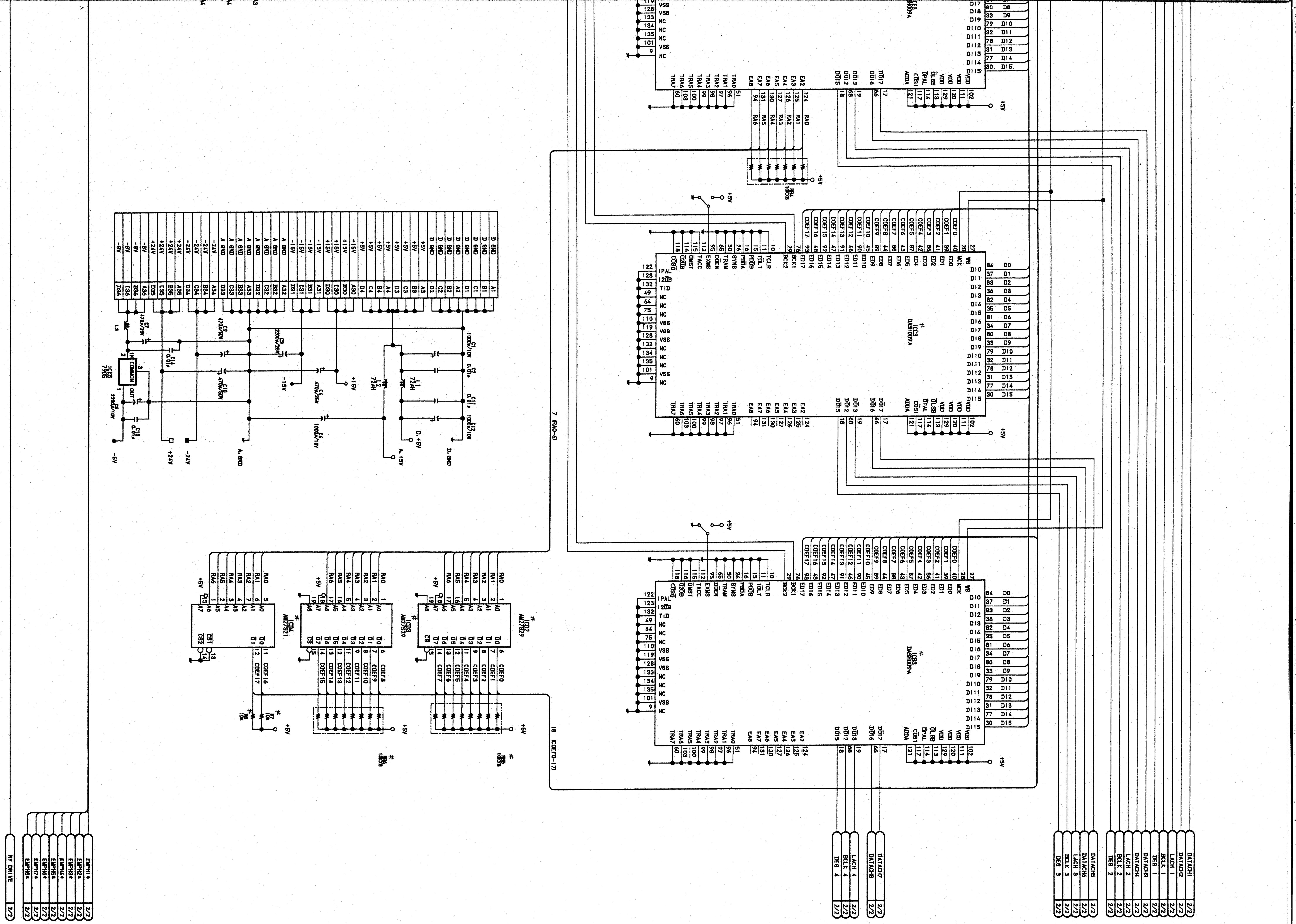

ICH1 AM26LS32
A7 WSYNC* (+) -DA
B7 WSYNC* (+) -DA
C7 WSYNC* (-) -DA
D7 WSYNC* (-) -DA
A6 192F* (+) -DA
B6 192F* (+) -DA
C6 192F* (-) -DA
D6 192F* (-) -DA
R1 100k
R2 100k
R3 10k
R4 10k
TP1
W. SYNC
RB1 100KX8
RB2 100KX8
ICH2 74LS541
ICB2 74LS541
RB8 10KX8
RB9 10KX8
A16 EDIT-DA 0
B16 EDIT-DA 0
C16 EDIT-DA 1
D16 EDIT-DA 1
A17 EDIT-DA 2
B17 EDIT-DA 2
C17 EDIT-DA 3
D17 EDIT-DA 3
A18 EDIT-DA 4
B18 EDIT-DA 4
C18 EDIT-DA 5
D18 EDIT-DA 5
A19 EDIT-DA 6
B19 EDIT-DA 6
C19 EDIT-DA 7
D19 EDIT-DA 7
A20 EDIT-DA 8
B20 EDIT-DA 8
C20 EDIT-DA 9
D20 EDIT-DA 9
A21 EDIT-DA 10
B21 EDIT-DA 10
C21 EDIT-DA 11
D21 EDIT-DA 11
A22 EDIT-DA 12
B22 EDIT-DA 12
C22 EDIT-DA 13
D22 EDIT-DA 13
A23 EDIT-DA 14
B23 EDIT-DA 14
C23 EDIT-DA 15
D23 EDIT-DA 15
C24 RB-EDITDA 1
D24 RB-EDITDA 1
A25 RB-EDITDA 2
B25 RB-EDITDA 2
C25 RB-EDITDA 3
D25 RB-EDITDA 3
A24 DA-EMP
B24 DA-EMP
RB3 100K
ICI2 74LS32
ICJ1 74LS163
ICI1 74HC74
R6 1k
R5 1k
RB5 100KX4
C13 BID *
D13 BID *
A11 CHID ADD0
B11 CHID ADD0
C12 CHID ADD1
D12 CHID ADD1
C11 CHID ADD 2
D11 CHID ADD 2
A12 RB-CHID ADD0
B12 RB-CHID ADD0
ICJ2 74LS138
CH1LCK
CH2LCK
CH3LCK
CH4LCK
CH5LCK
CH6LCK
CH7LCK
CH8LCK
#ICF3 DASH009A
#ICE3 DASH009A
ICA3 74HC04
ICA2 74HC595
EMPH8*
EMPH7*
EMPH6*
EMPH5*
EMPH4*
EMPH3*
EMPH2*
EMPH1*
ICA4 74HC04
D1-8 TLB124X8
RB7 220X8
ICJ1 74HC74
A27 PWD+V
B27 PWD+V
C27 PWD*
D27 PWD*
R11 3.3k
D10 1S1585
ICK4 PC817
R12 2.2k
R13 2.2k
R14 10k
R15 2.2k
R16 33k
Q1 2SC2021
Q2 2SC2021
Q3 2SC2021
Q4 2SC3668
C8 100μ/10V
D9 1S1585
+5V
+24V
ICI2 74HC32
NC

#: Changed Information

Applied Serial No.	Parts that have been deleted.	Parts that have been changed.
10401 and higher	ICD2, 3, 4 R7, 8 RB4, 5, 6	ICB3, ICC3, ICE3, ICF3 DASH009  DASH009A

DASH009
EXMS
95
D. +5V
DASH009A
EXMS
95
D. +5V

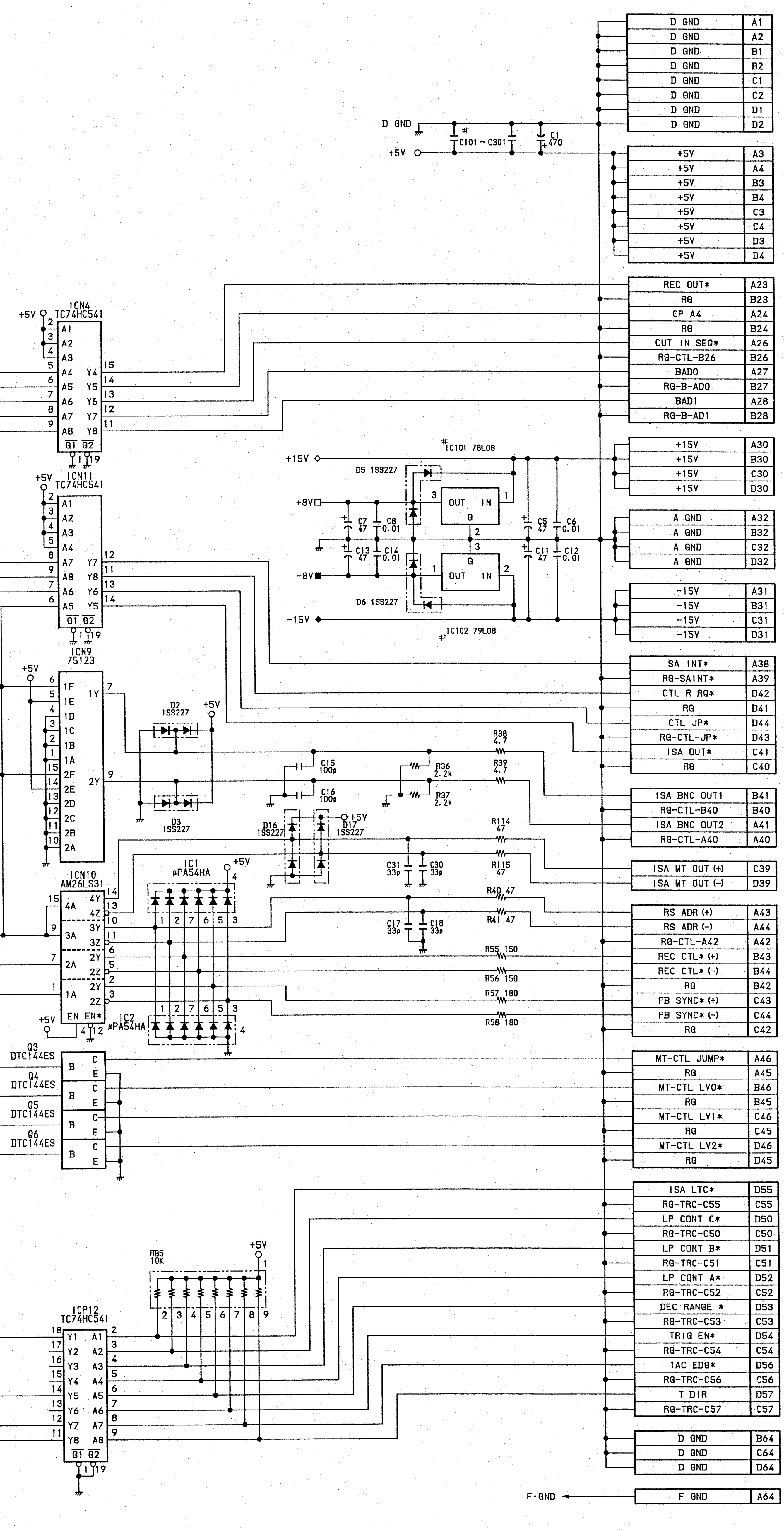
REF	TYPE	+V	GND
1H	AM26LS32	16	8
3K, 3A, 4A	74HC04	14	7
2I	74LS32	14	7
1I	74HC74	14	7
2J	74LS138	16	8
1J	74LS163	16	8
2B, 2H	74LS541	20	10
2A	74HC595	16	8
2D, 3D	AM27S29	20	10
4D	AM27S21	16	8


IC3 DA51009A
IC8 DA51009A
IC2 AM27S29
IC3 AM27S29
IC4 AM27S21
IC5 7905
COMMON
RB4 1KΩ×8
RB5 1KΩ×8
RB6 1KΩ×8
L1 72μH
L2 72μH
L3
C1 1000μ/10V
C2 0.01μ
C3 2200μ/25V
C4 470μ/25V
C5 2200μ/10V
C6 1000μ/10V
C7 470μ/25V
C9 470μ/50V
C10 470μ/50V
C11 0.01μ
C12 1000μ/10V
C13 0.01μ
C14 0.01μ
+5V
-5V
+15V
-15V
+24V
-24V
A.GND
D.GND
A.+5V
D.+5V
7 (RA0-6)
18 (COEF0-17)
RY DRIVE
EMPH1*
EMPH2*
EMPH3*
EMPH4*
EMPH5*
EMPH6*
EMPH7*
EMPH8*
DEG 4
BCLK 4
LACH 4
DATACH7
DATACH8
DEG 3
BCLK 3
DATACH6
DATACH5
DEG 2
BCLK 2
LACH 2
DATACH4
DATACH3
DEG 1
BCLK 1
LACH 1
DATACH2
DATACH1
2/2

Digital Analog

DA-25 BOARD (1/2)

BOARD NO.1-625-486-12 & HIGHER
PCM-3348


D GND A1
D GND A2
D GND B1
D GND B2
D GND C1
D GND C2
D GND D1
D GND D2
+5V A3
+5V A4
+5V B3
+5V B4
+5V C3
+5V C4
+5V D3
+5V D4
REC OUT* A23
RG B23
CP A4 A24
RG B24
CUT IN SEQ* A26
RG-CTL-B26 B26
BAD0 A27
RG-B-AD0 B27
BAD1 A28
RG-B-AD1 B28
+15V A30
+15V B30
+15V C30
+15V D30
A GND A32
A GND B32
A GND C32
A GND D32
-15V A31
-15V B31
-15V C31
-15V D31
SA INT* A38
RG-SAINT* A39
CTL R RQ* D42
RG D41
CTL JP* D44
RG-CTL-JP* D43
ISA OUT* C41
RG C40
ISA BNC OUT1 B41
RG-CTL-B40 B40
ISA BNC OUT2 A41
RG-CTL-A40 A40
ISA MT OUT (+) C39
ISA MT OUT (-) D39
RS ADR (+) A43
RS ADR (-) A44
RG-CTL-A42 A42
REC CTL* (+) B43
REC CTL* (-) B44
RG B42
PB SYNC* (+) C43
PB SYNC* (-) C44
RG C42
MT-CTL JUMP* A46
RG A45
MT-CTL LV0* B46
RG B45
MT-CTL LV1* C46
RG C45
MT-CTL LV2* D46
RG D45
ISA LTC* D55
RG-TRC-C55 C55
LP CONT C* D50
RG-TRC-C50 C50
LP CONT B* D51
RG-TRC-C51 C51
LP CONT A* D52
RG-TRC-C52 C52
DEC RANGE * D53
RG-TRC-C53 C53
TRIG EN* D54
RG-TRC-C54 C54
TAC EDG* D56
RG-TRC-C56 C56
T DIR D57
RG-TRC-C57 C57
D GND B64
D GND C64
D GND D64
F GND A64
F·GND
D GND
+5V
# C101 ~ C301
C1 470
#IC101 78L08
#IC102 79L08
D5 1SS227
D6 1SS227
OUT IN
G
+15V
+8V
-8V
-15V
C5 47
C6 0.01
C7 47
C8 0.01
C11 47
C12 0.01
C13 47
C14 0.01
ICN4 TC74HC541
ICN11 TC74HC541
ICN9 75123
ICN10 AM26LS31
ICP12 TC74HC541
IC1 μPA54HA
IC2 μPA54HA
D2 1SS227
D3 1SS227
D16 1SS227
D17 1SS227
C15 100p
C16 100p
C17 33p
C18 33p
C30 33p
C31 33p
R36 2.2k
R37 2.2k
R38 4.7
R39 4.7
R114 47
R115 47
R40 47
R41 47
R55 150
R56 150
R57 180
R58 180
RB5 10K
Q3 DTC144ES
Q4 DTC144ES
Q5 DTC144ES
Q6 DTC144ES

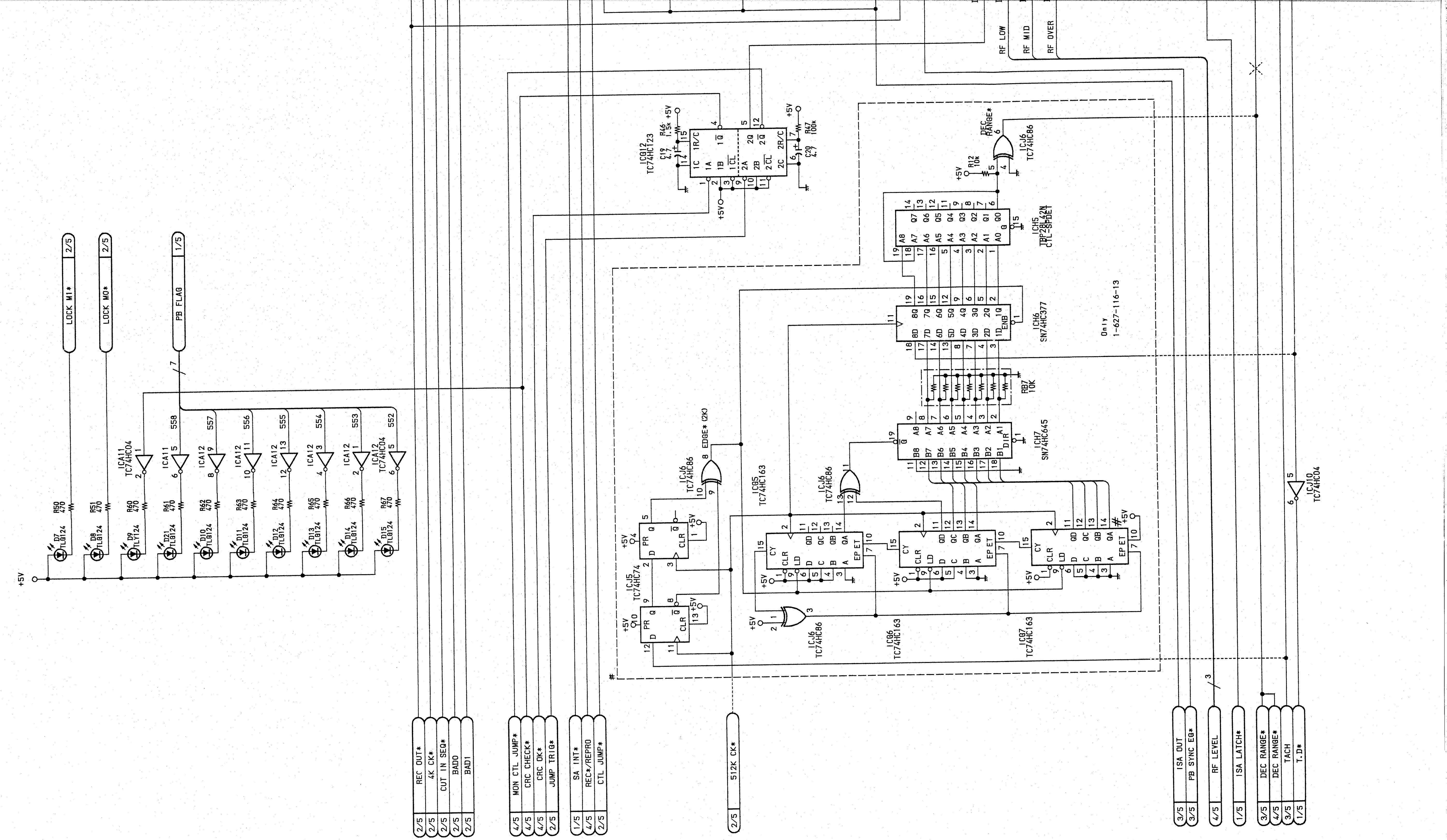
#: Changed Information

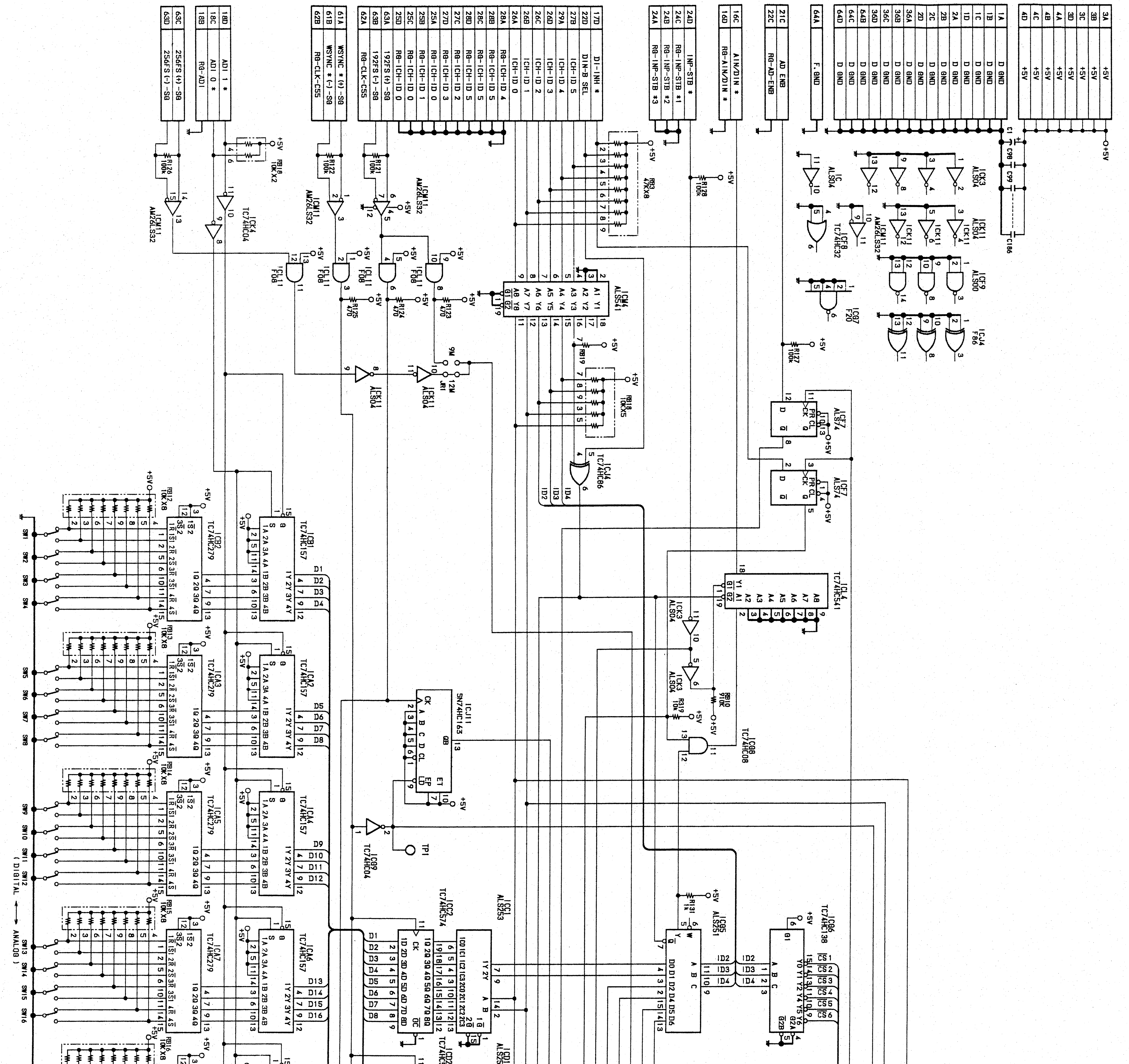
Applied Serial No.	Parts that have been added.	Parts that have been changed.
10101 and higher		Q1 → IC101 Q2 → IC102
10201 and higher	C194, 195, 196 C208, 209, 210 C222, 223, 270 C274, 285 ICG5, 6, 7 ICH5, 6, 7 ICJ5, 6 RB7, R12	

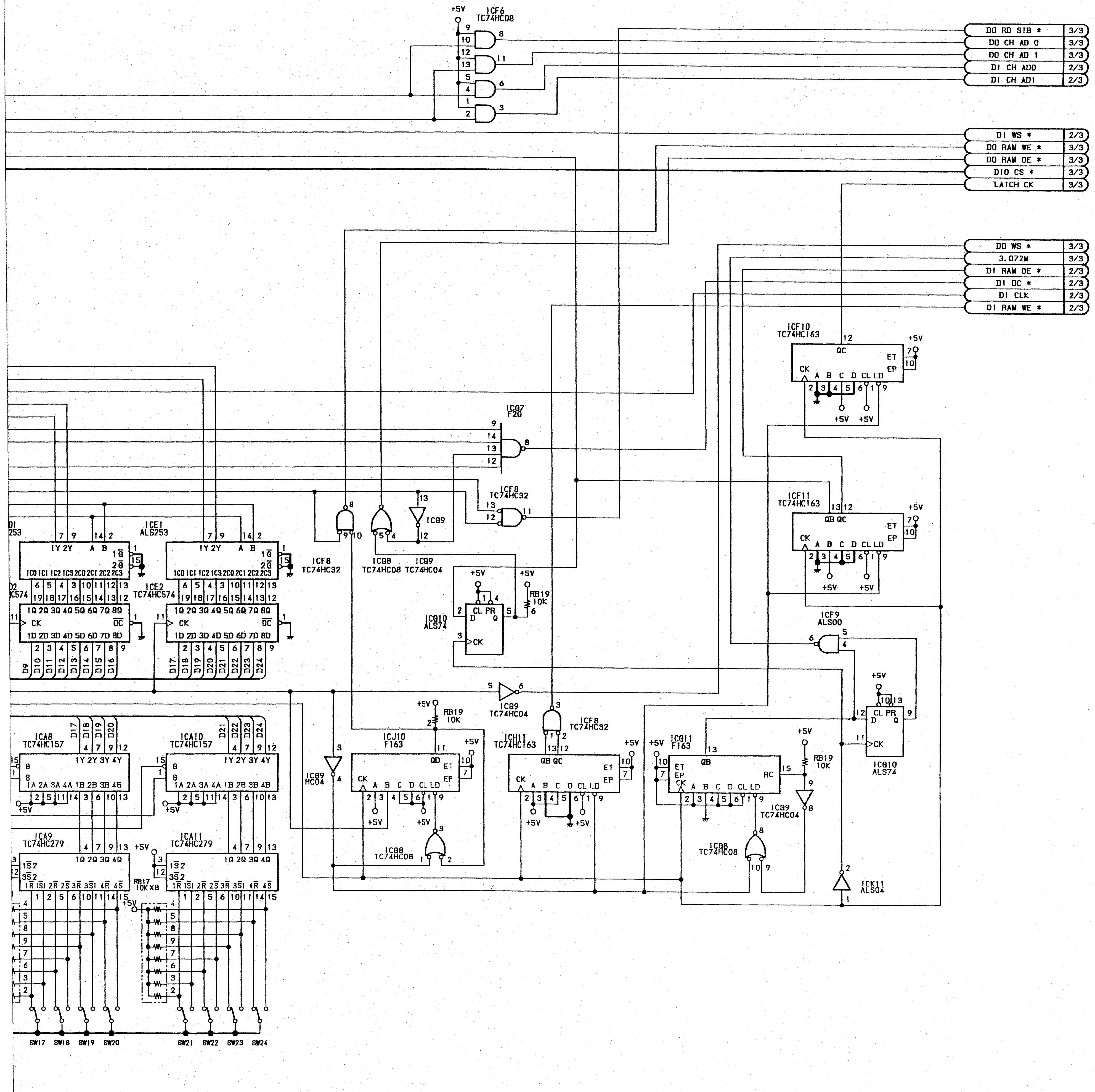
Control Track

CTL-2 BOARD (5/5)

BOARD NO.1-627-116-11 & HIGHER
PCM-3348


LOCK M1* 2/5
LOCK M0* 2/5
PB FLAG 1/5
+5V
D7 TLG124
D8 TLG124
D9 TLY124
D21 TLG124
D10 TLG124
D11 TLG124
D12 TLG124
D13 TLG124
D14 TLG124
D15 TLG124
R50 470
R51 470
R60 470
R61 470
R62 470
R63 470
R64 470
R65 470
R66 470
R67 470
ICA11 TC74HC04
ICA12 TC74HC04
558
557
556
555
554
553
552
REC OUT* 2/5
4K CK* 2/5
CUT IN SEQ* 2/5
BAD0 2/5
BAD1 2/5
MON CTL JUMP* 4/5
CRC CHECK* 4/5
CRC OK* 4/5
JUMP TRIG* 2/5
SA INT* 1/5
REC*/REPRO 4/5
CTL JUMP* 2/5
512K CK* 2/5
ICQ12 TC74HC123
R46 1.5k
R47 100k
C19 4.7
C29 4.7
ICJ5 TC74HC74
ICJ6 TC74HC86
EDGE* (2K)
ICG5 TC74HC163
ICG6 TC74HC163
ICG7 TC74HC163
ICH5 TBP28L42N CTL-SPDET
ICH6 SN74HC377
ICH7 SN74HC645
RB7 10K
R12 10k
REC RANGE*
Only 1-627-116-13
RF LOW
RF MID
RF OVER
ICJ10 TC74HC04
ISA OUT 3/5
PB SYNC EQ* 3/5
RF LEVEL 4/5
ISA LATCH* 1/5
DEC RANGE* 3/5
DEC RANGE* 4/5
TACH 3/5
T.D* 1/5

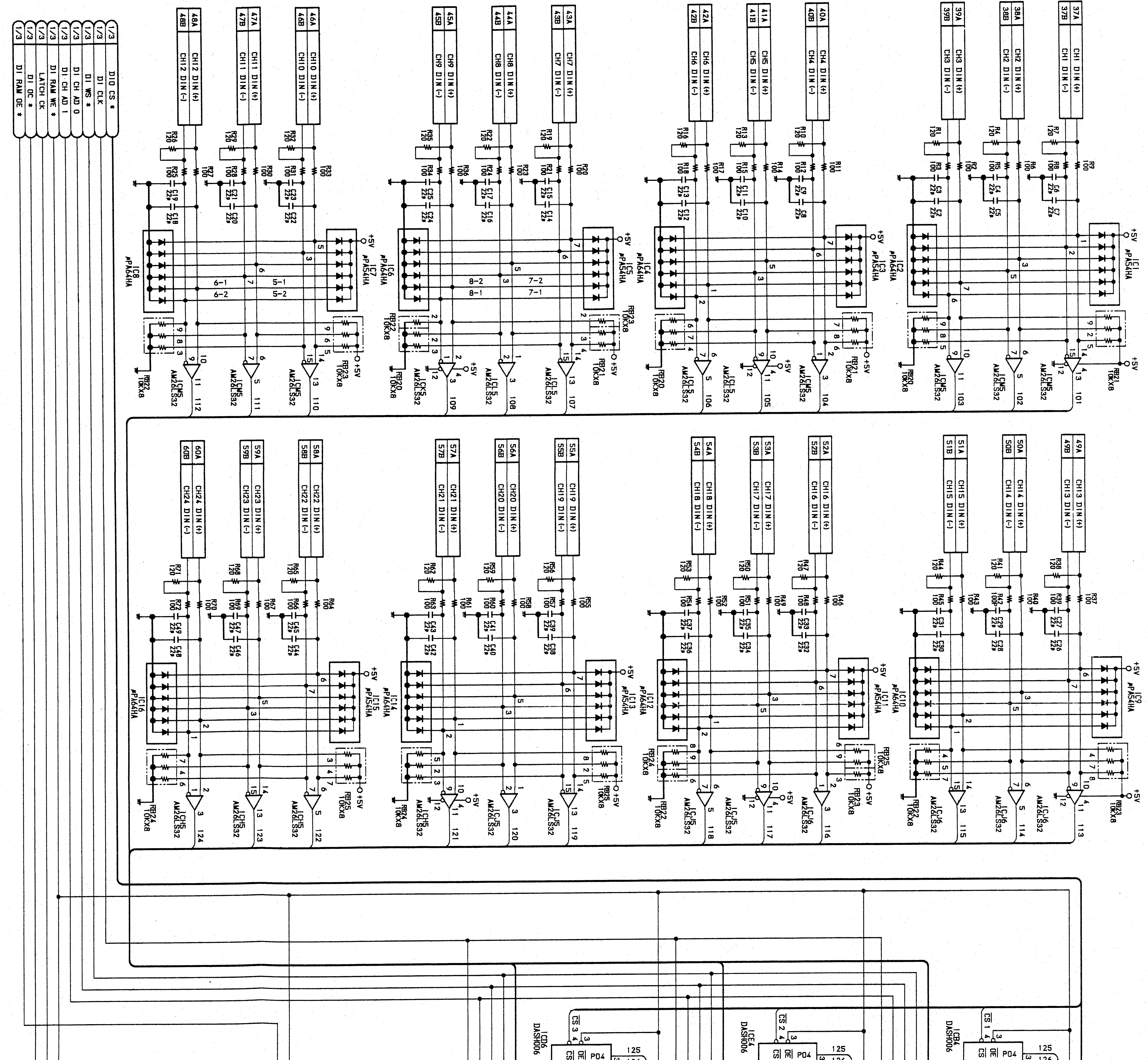

63C 256FS (+) -SQ
63D 256FS (-) -SQ
18D ADI 1 *
18C ADI 0 *
18B RQ-ADI
61A WSYNC * (+) -SQ
61B WSYNC * (-) -SQ
62B RQ-CLK-C55
63A 192FS (+) -SQ
63B 192FS (-) -SQ
62A RQ-CLK-C55
17D DI-INH *
22D DIN-B SEL
24D INP-STB *
24C RQ-INP-STB *1
24B RQ-INP-STB *2
24A RQ-INP-STB *3
16C AIN/DIN *
16D RQ-AIN/DIN *
21C AD ENB
22C RQ-AD-ENB
64A F.GND
D GND
+5V
ICM11 AM26LS32
ICK4 TC74HC04
ICL1 F08
ICM4 ALS541
RB3 47K×8
ICK3 ALS04
ICK11 ALS04
ICF8 TC74HC32
ICF9 ALS00
ICG7 F20
ICJ4 F86
ICF7 ALS74
ICL4 TC74HC541
ICL4 TC74HC86
ICK3 ALS04
ICG8 TC74HC08
ICJ1 SN74HC163
ICG9 TC74HC04
TP1
ICB1 TC74HC157
ICB2 TC74HC279
ICA2 TC74HC157
ICA3 TC74HC279
ICA4 TC74HC157
ICA5 TC74HC279
ICA6 TC74HC157
ICA7 TC74HC279
ICC2 TC74HC574
ICC1 ALS253
ICB5 ALS251
ICB6 TC74HC138
SW1
SW2
SW3
SW4
SW5
SW6
SW7
SW8
SW9
SW10
SW11
SW12
SW13
SW14
SW15
SW16
(DIGITAL ←→ ANALOG)
D1 D2 D3 D4 D5 D6 D7 D8 D9 D10 D11 D12 D13 D14 D15 D16
ID2 ID3 ID4
CS1 CS2 CS3 CS4 CS5 CS6
R126 100k
R121 100k
R122 100k
R123 470
R124 470
R125 470
R127 100k
R128 100k
R131 1k
R119 10k
RB18 10K×2
RB19
RB7 10K×8
RB13 10K×8
RB14 10K×8
RB15 10K×8
RB16 10K×8

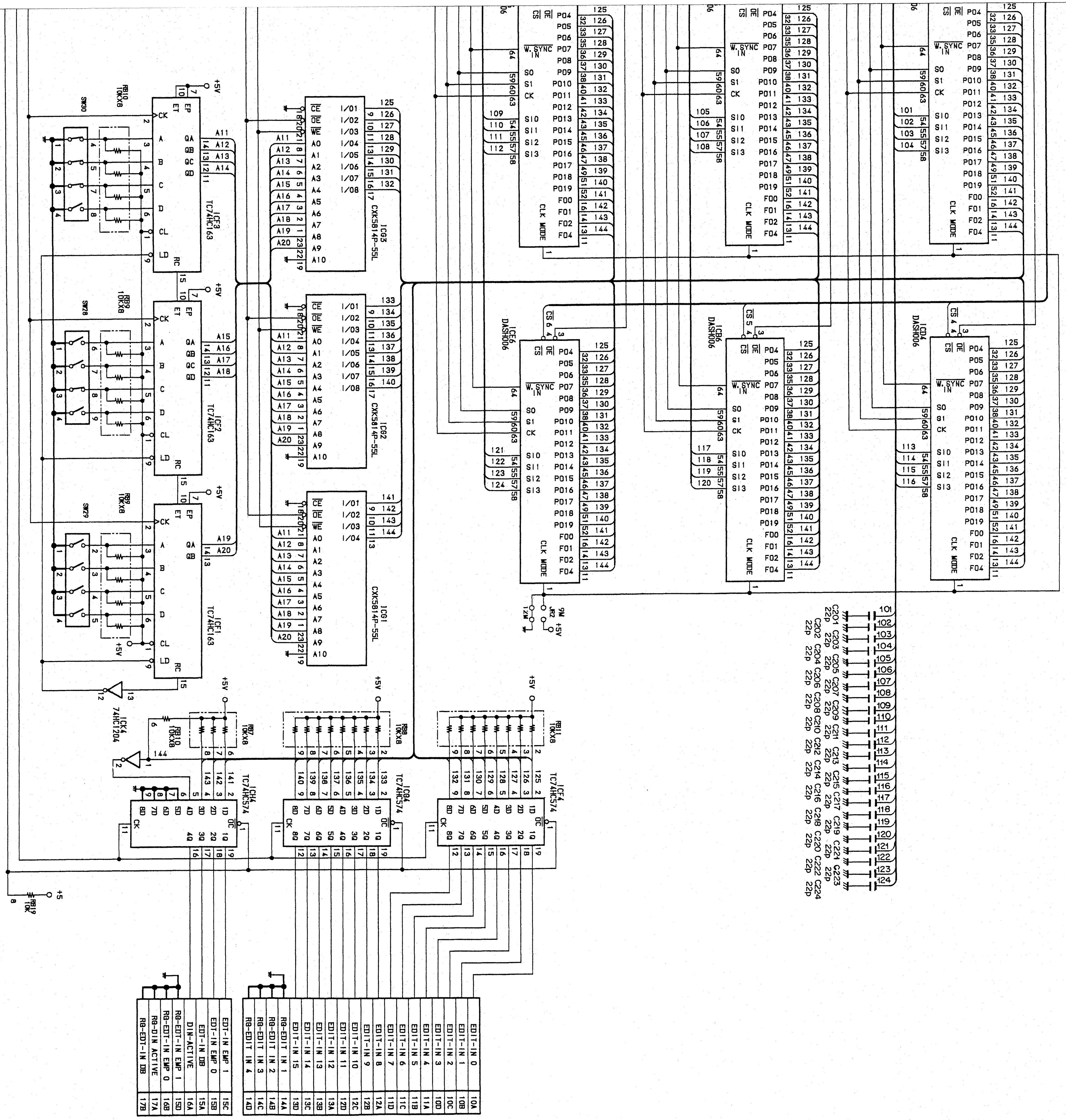

ICF6
TC74HC08
+5V
DO RD STB *
DO CH AD 0
DO CH AD 1
DI CH AD0
DI CH AD1
DI WS *
DO RAM WE *
DO RAM OE *
DIO CS *
LATCH CK
DO WS *
3.072M
DI RAM OE *
DI OC *
DI CLK
DI RAM WE *
2/3
3/3
ICF10
TC74HC163
ICF11
TC74HC163
ICB7
F20
ICF8
TC74HC32
ICE1
ALS253
ICE2
TC74HC574
ICB8
TC74HC08
ICB9
TC74HC04
ICB10
ALS74
RB19
10K
ICF9
ALS00
ICJ10
F163
ICH11
TC74HC163
ICB11
F163
ICK11
ALS04
ICA8
TC74HC157
ICA10
TC74HC157
ICA9
TC74HC279
ICA11
TC74HC279
RB17
10K X8
D9
D10
D11
D12
D13
D14
D15
D16
D17
D18
D19
D20
D21
D22
D23
D24
SW17
SW18
SW19
SW20
SW21
SW22
SW23
SW24

Digital Input Output

DIO-5 BOARD (1/3)

BOARD NO.1-627-117-11 & HIGHER
PCM-3348

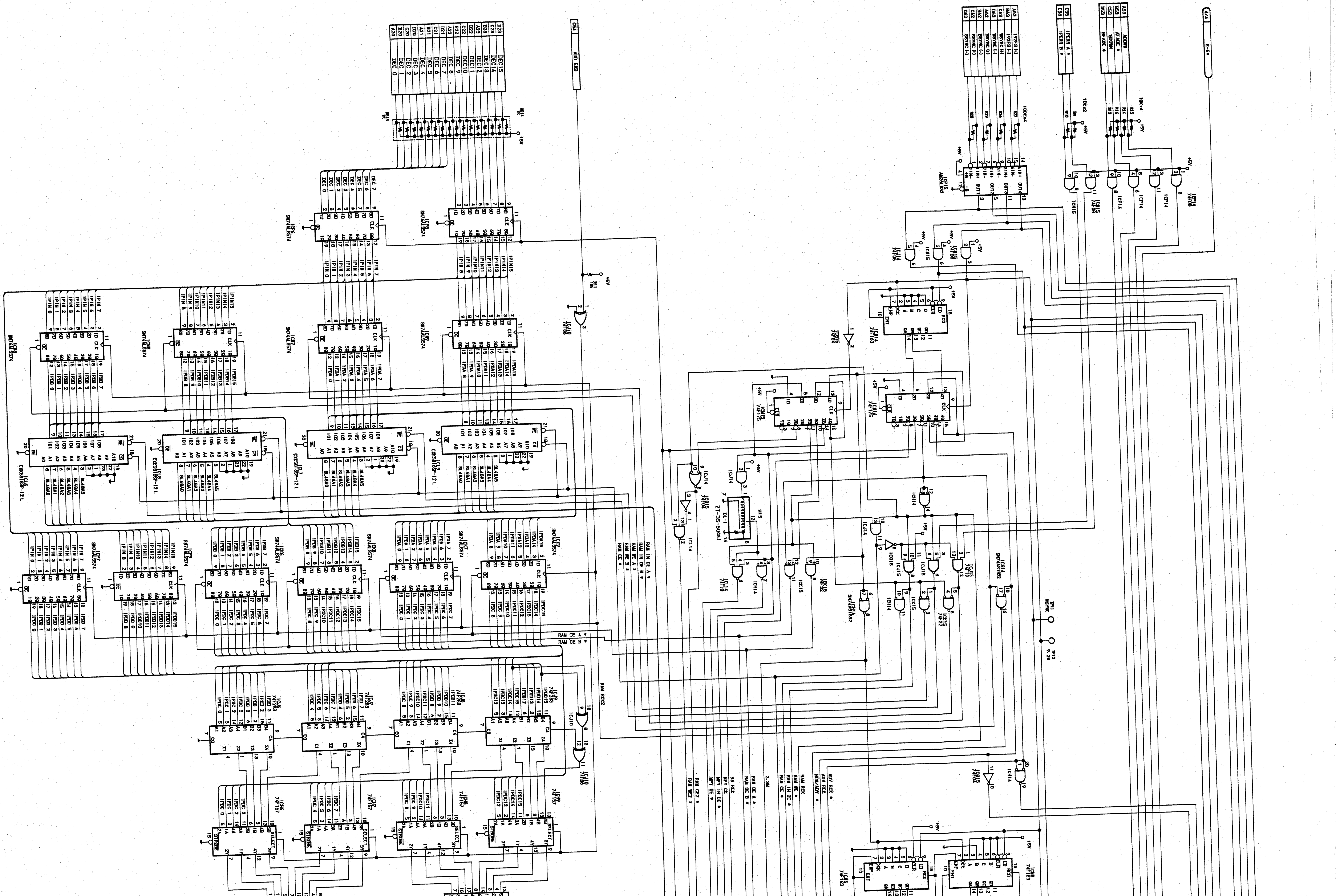

DIO CS *
DI CLK
DI WS *
DI CH AD 0
DI CH AD 1
DI RAM WE *
LATCH CK
DI OC *
DI RAM OE *
1/3
CH1 DIN (+)
CH1 DIN (-)
CH2 DIN (+)
CH2 DIN (-)
CH3 DIN (+)
CH3 DIN (-)
CH4 DIN (+)
CH4 DIN (-)
CH5 DIN (+)
CH5 DIN (-)
CH6 DIN (+)
CH6 DIN (-)
CH7 DIN (+)
CH7 DIN (-)
CH8 DIN (+)
CH8 DIN (-)
CH9 DIN (+)
CH9 DIN (-)
CH10 DIN (+)
CH10 DIN (-)
CH11 DIN (+)
CH11 DIN (-)
CH12 DIN (+)
CH12 DIN (-)
CH13 DIN (+)
CH13 DIN (-)
CH14 DIN (+)
CH14 DIN (-)
CH15 DIN (+)
CH15 DIN (-)
CH16 DIN (+)
CH16 DIN (-)
CH17 DIN (+)
CH17 DIN (-)
CH18 DIN (+)
CH18 DIN (-)
CH19 DIN (+)
CH19 DIN (-)
CH20 DIN (+)
CH20 DIN (-)
CH21 DIN (+)
CH21 DIN (-)
CH22 DIN (+)
CH22 DIN (-)
CH23 DIN (+)
CH23 DIN (-)
CH24 DIN (+)
CH24 DIN (-)
μPA54HA
μPA64HA
AM26LS32
10Kx8
+5V
120
100
22p
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC10
IC11
IC12
IC13
IC14
IC15
IC16
ICM5
ICL5
ICK5
ICJ5
ICH5
ICJ6
ICI6
RB20
RB21
RB22
RB23
RB24
RB25
ICB4
ICE4
ICD6
DASH006
CS
OE
P04
125

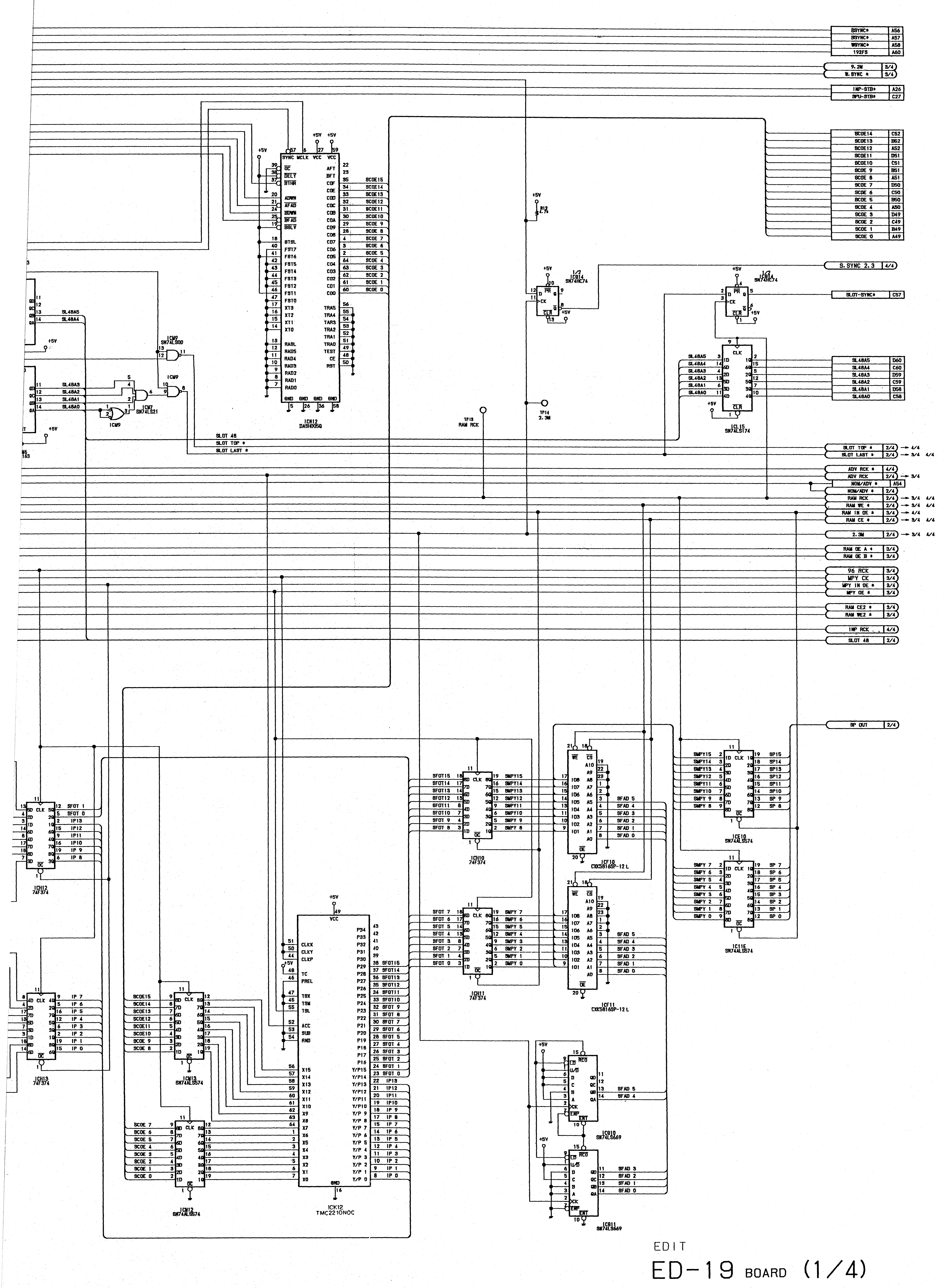

IC F3 TC74HC163
IC F2 TC74HC163
IC F1 TC74HC163
SW30
SW28
SW29
RB10 10K×8
RB9 10K×8
IC G3 CXK5814P-55L
IC G2 CXK5814P-55L
IC G1 CXK5814P-55L
IC E6 DASH006
IC B6 DASH006
IC D4 DASH006
IC K4 74HC1204
IC H4 TC74HC574
IC B4 TC74HC574
IC F4 TC74HC574
RB7 10K×8
RB8 10K×8
RB11 10K×8
RB19 10K
JR2
C201–C224 22p
+5V
EDIT-IN 0
EDIT-IN 1
EDIT-IN 2
EDIT-IN 3
EDIT-IN 4
EDIT-IN 5
EDIT-IN 6
EDIT-IN 7
EDIT-IN 8
EDIT-IN 9
EDIT-IN 10
EDIT-IN 11
EDIT-IN 12
EDIT-IN 13
EDIT-IN 14
EDIT-IN 15
RB-EDIT IN 1
RB-EDIT IN 2
RB-EDIT IN 3
RB-EDIT IN 4
EDIT-IN EMP 1
EDIT-IN EMP 0
EDIT-IN DB
DIN-ACTIVE
RB-EDIT-IN EMP 1
RB-EDIT-IN EMP 0
RB-DIN ACTIVE
RB-EDIT-IN DB

Digital Input Output

DIO-5 BOARD (2/3)

BOARD NO. 1-627-117-11 & HIGHER
PCM-3348

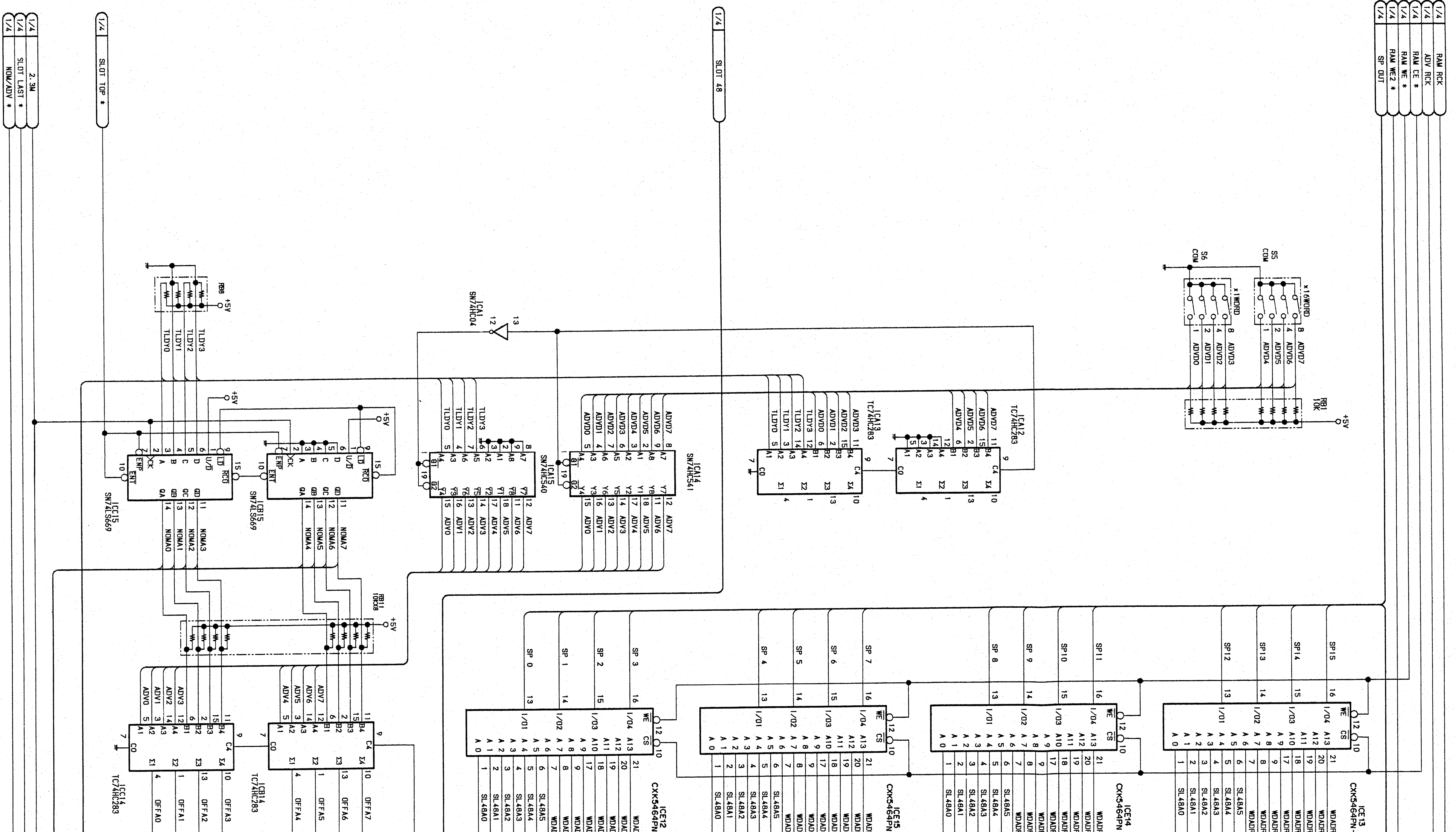

E-E4
SN74ALS574
CXK5816SP-12L
74F283
74F157
74F175
74F163
74F08
74F86
74F32
74F10
AM26LS32
SN74AS1832
+5V
RAM OE A *
RAM OE B *
RAM RCK2
ADV END
STROBE
SELECT
IPDA 0
IPDB 0
IPDC 0
IPDD 0
IPIN 0
DEC 0
TP11
TP12

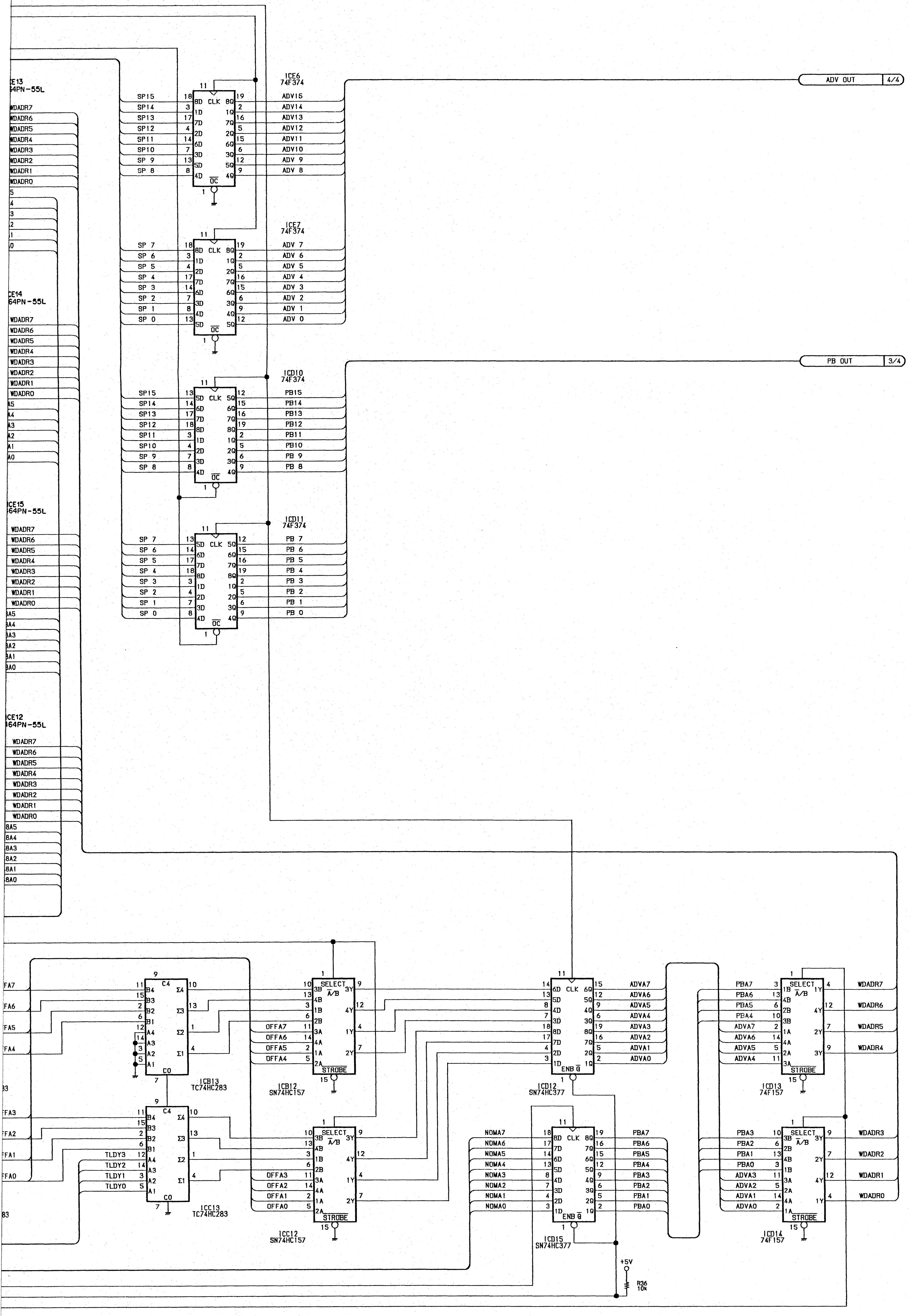

ICK12 TMC2210NOC
ICM12 SN74ALS574
ICM13 SN74ALS574
ICH12 74F374
ICH13 74F374
ICH10 74F374
ICH11 74F374
ICF10 CXK5816SP-12L
ICF11 CXK5816SP-12L
ICE10 SN74ALS574
ICE11 SN74ALS574
ICB10 SN74LS669
ICB11 SN74LS669
ICM12 DASH005Q
ICM9 SN74LS00
ICM7 SN74LS21
ICL15 SN74LS174
1/2 ICB14 SN74HC74
TP13 RAM RCK
TP14 2.3M
R12 4.7k
BSYNC* A56
BSYNC* A57
WSYNC* A58
192FS A60
9.2M 3/4
W.SYNC * 3/4
INP-STB* A26
SPU-STB* C27
SCOE14 C52
SCOE13 B52
SCOE12 A52
SCOE11 D51
SCOE10 C51
SCOE 9 B51
SCOE 8 A51
SCOE 7 D50
SCOE 6 C50
SCOE 5 B50
SCOE 4 A50
SCOE 3 D49
SCOE 2 C49
SCOE 1 B49
SCOE 0 A49
S.SYNC 2.3 4/4
SLOT-SYNC* C57
SL48A5 D60
SL48A4 C60
SL48A3 D59
SL48A2 C59
SL48A1 D58
SL48A0 C58
SLOT TOP * 2/4 → 4/4
SLOT LAST * 2/4 → 3/4 4/4
ADV RCK * 4/4
ADV RCK 2/4 → 3/4
NOM/ADV * A54
NOM/ADV * 2/4
RAM RCK 2/4 → 3/4 4/4
RAM WE * 2/4 → 3/4 4/4
RAM IN OE * 3/4 → 3/4
RAM CE * 2/4 → 3/4 4/4
2.3M 2/4 → 3/4 4/4
RAM OE A * 3/4
RAM OE B * 3/4
96 RCK 3/4
MPY CK 3/4
MPY IN OE * 3/4
MPY OE * 3/4
RAM CE2 * 3/4
RAM WE2 * 3/4
INP RCK 4/4
SLOT 48 2/4
SP OUT 2/4

EDIT

ED-19 BOARD (1/4)

BOARD NO.1-627-110-11 & HIGHER
PCM-3348


1/4 2.3M
1/4 SLOT LAST *
1/4 NOM/ADV *
1/4 SLOT TOP *
1/4 SLOT 48
1/4 RAM RCK
1/4 ADV RCK
1/4 RAM CE *
1/4 RAM WE *
1/4 RAM WE2 *
1/4 SP OUT
RB8
+5V
TLDY0
TLDY1
TLDY2
TLDY3
ICA1 SN74HC04
ICC15 SN74LS669
ICB15 SN74LS669
ICA15 SN74HC540
ICA14 SN74HC541
ICA13 TC74HC283
ICA12 TC74HC283
S6 COM
S5 COM
x1WORD
x16WORD
RB1 10K
ADVD0
ADVD1
ADVD2
ADVD3
ADVD4
ADVD5
ADVD6
ADVD7
ADV0
ADV1
ADV2
ADV3
ADV4
ADV5
ADV6
ADV7
NOMA0
NOMA1
NOMA2
NOMA3
NOMA4
NOMA5
NOMA6
NOMA7
RB11 10KX8
ICC14 TC74HC283
ICB14 TC74HC283
OFFA0
OFFA1
OFFA2
OFFA3
OFFA4
OFFA5
OFFA6
OFFA7
SP 0
SP 1
SP 2
SP 3
SP 4
SP 5
SP 6
SP 7
SP 8
SP 9
SP10
SP11
SP12
SP13
SP14
SP15
ICE12 CXK5464PN
ICE15 CXK5464PN
ICE14 CXK5464PN
ICE13 CXK5464PN
SL48A0
SL48A1
SL48A2
SL48A3
SL48A4
SL48A5
WDAD

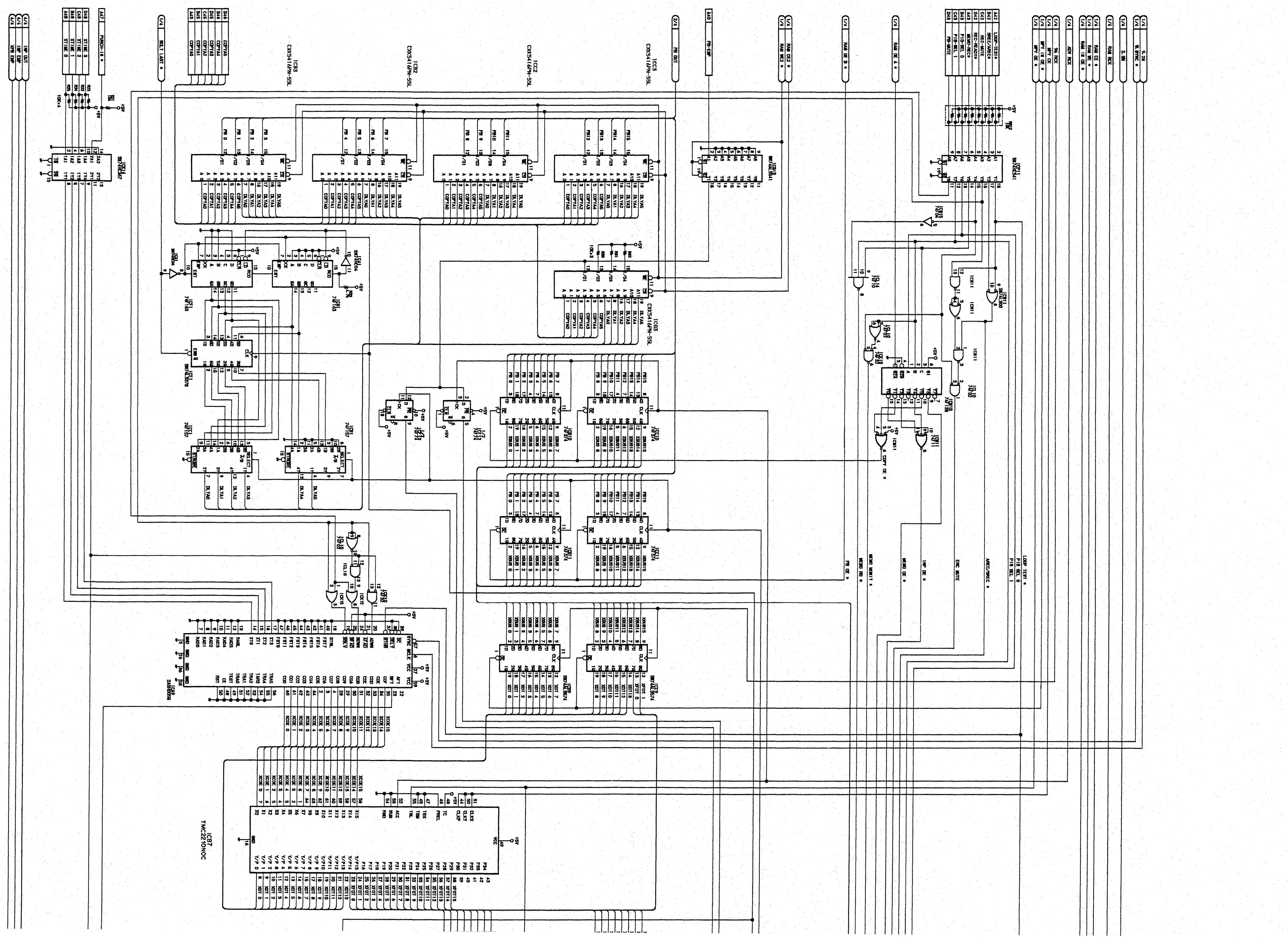


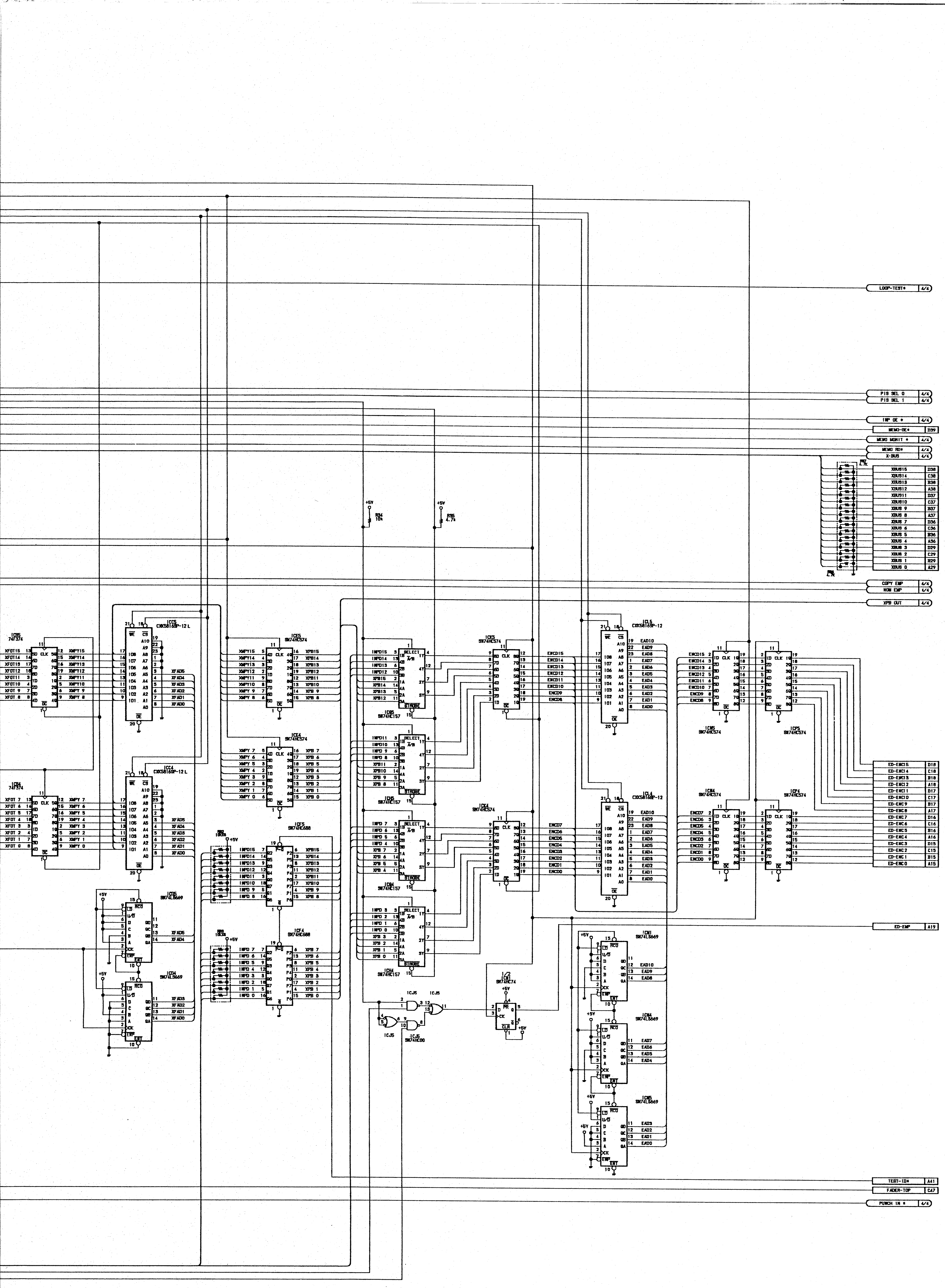
ICE13
64PN-55L
ICE14
64PN-55L
ICE15
64PN-55L
ICE12
64PN-55L
ICE6
74F374
ICE7
74F374
ICD10
74F374
ICD11
74F374
ADV OUT
4/4
PB OUT
3/4
SP 0 … SP15
ADV 0 … ADV15
PB 0 … PB15
WDADR0 … WDADR7
ICB13
TC74HC283
ICC13
TC74HC283
ICB12
SN74HC157
ICC12
SN74HC157
ICD12
SN74HC377
ICD15
SN74HC377
ICD13
74F157
ICD14
74F157
TLDY0
TLDY1
TLDY2
TLDY3
OFFA0 … OFFA7
NOMA0 … NOMA7
ADVA0 … ADVA7
PBA0 … PBA7
SELECT
A/B
STROBE
CLK
ENB G
OC
+5V
R36
10k

EDIT

ED-19 BOARD (2/4)

BOARD NO.1-627-110-11 & HIGHER
PCM-3348

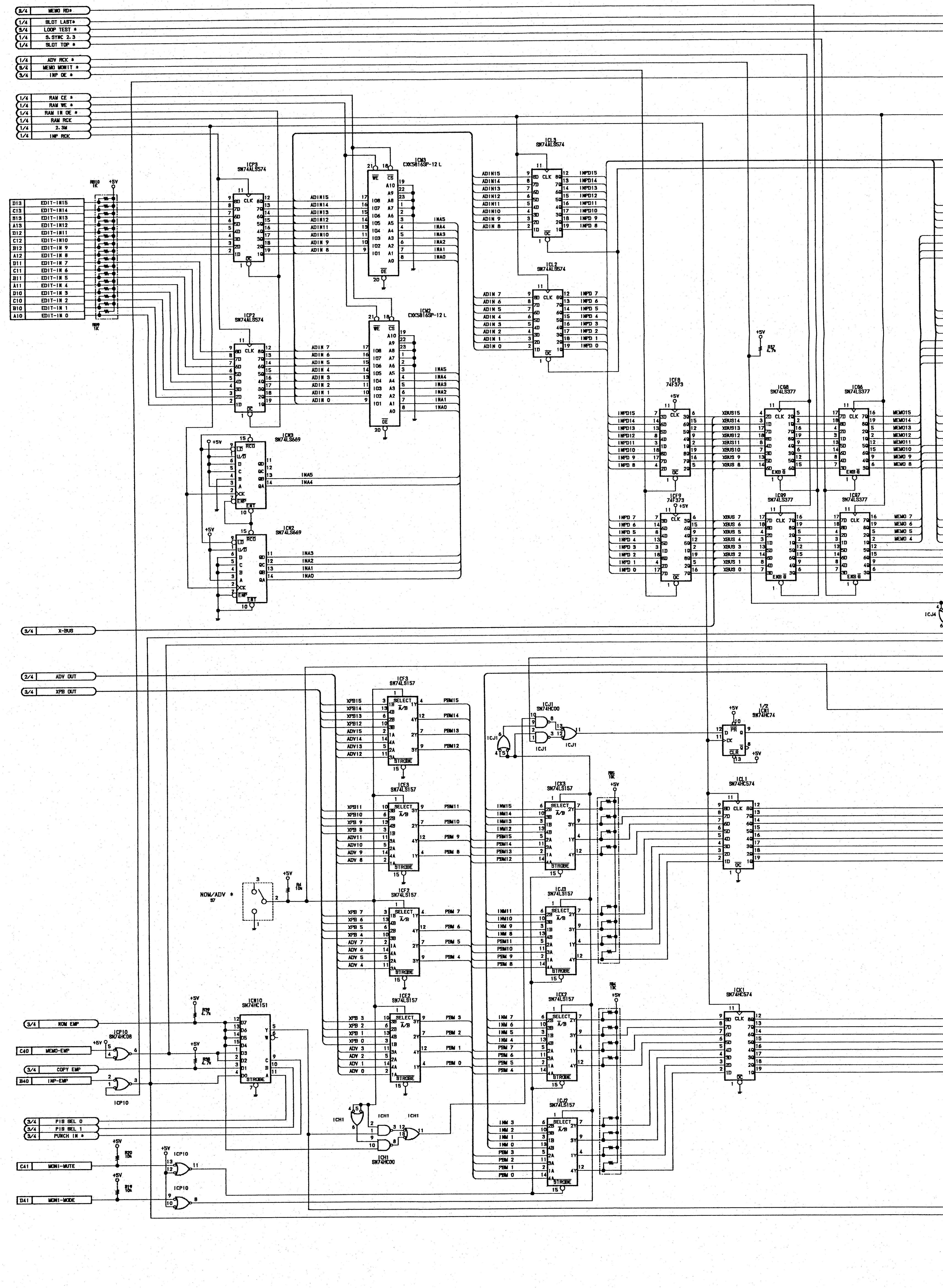

ICB3
CXK5416PN-55L
ICB2
CXK5416PN-55L
ICC2
CXK5416PN-55L
ICC3
CXK5416PN-55L
ICD3
CXK5416PN-55L
ICB7
TMC2210NOC

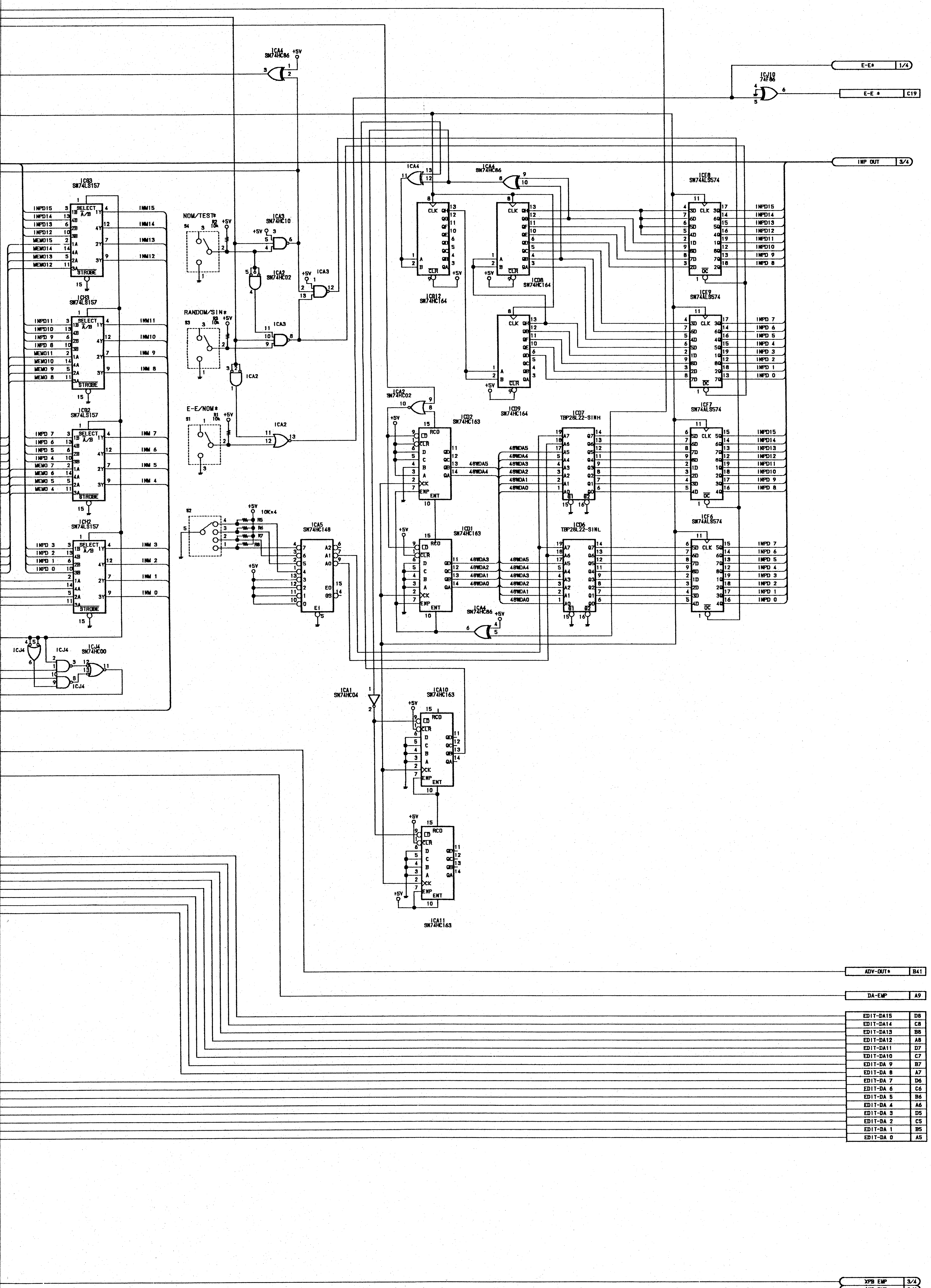

ICB5 74F374
ICB4 74F374
ICC5 CXK5816SP-12 L
ICC4 CXK5816SP-12 L
ICE5 SN74HC574
ICE4 SN74HC574
ICF5 SN74HC688
ICF4 SN74HC688
ICD5 SN74LS669
ICD4 SN74LS669
ICG5 SN74HC157
ICH5 SN74HC157
ICG4 SN74HC157
ICH4 SN74HC157
ICK5 SN74HC574
ICK4 SN74HC574
ICL5 CXK5816SP-12
ICL4 CXK5816SP-12
ICM5 SN74HC574
ICP5 SN74HC574
ICM4 SN74HC574
ICP4 SN74HC574
ICM1 SN74LS669
ICM4 SN74LS669
ICM5 SN74LS669
ICJ5 SN74HC00
1/2 ICN1 SN74HC74
RB2 10kΩ×8
RB3 10kΩ×8
R34 10k
R35 4.7k
RB7 4.7k
RB6 4.7k
+5V
LOOP-TEST* 4/4
PIS SEL 0 4/4
PIS SEL 1 4/4
INP OE * 4/4
MEMO-OE* D39
MEMO MONIT * 4/4
MEMO RD* 4/4
X-BUS 4/4
XBUS15 D38
XBUS14 C38
XBUS13 B38
XBUS12 A38
XBUS11 D37
XBUS10 C37
XBUS 9 B37
XBUS 8 A37
XBUS 7 D36
XBUS 6 C36
XBUS 5 B36
XBUS 4 A36
XBUS 3 D29
XBUS 2 C29
XBUS 1 B29
XBUS 0 A29
COPY EMP 4/4
NOM EMP 4/4
XPB OUT 4/4
ED-ENC15 D18
ED-ENC14 C18
ED-ENC13 B18
ED-ENC12 A18
ED-ENC11 D17
ED-ENC10 C17
ED-ENC9 B17
ED-ENC8 A17
ED-ENC7 D16
ED-ENC6 C16
ED-ENC5 B16
ED-ENC4 A16
ED-ENC3 D15
ED-ENC2 C15
ED-ENC1 B15
ED-ENC0 A15
ED-EMP A19
TEST-ID* A41
FADER-TOP C47
PUNCH IN * 4/4

EDIT

ED-19 BOARD (3/4)

BOARD NO.1-627-110-11 & HIGHER
PCM-3348

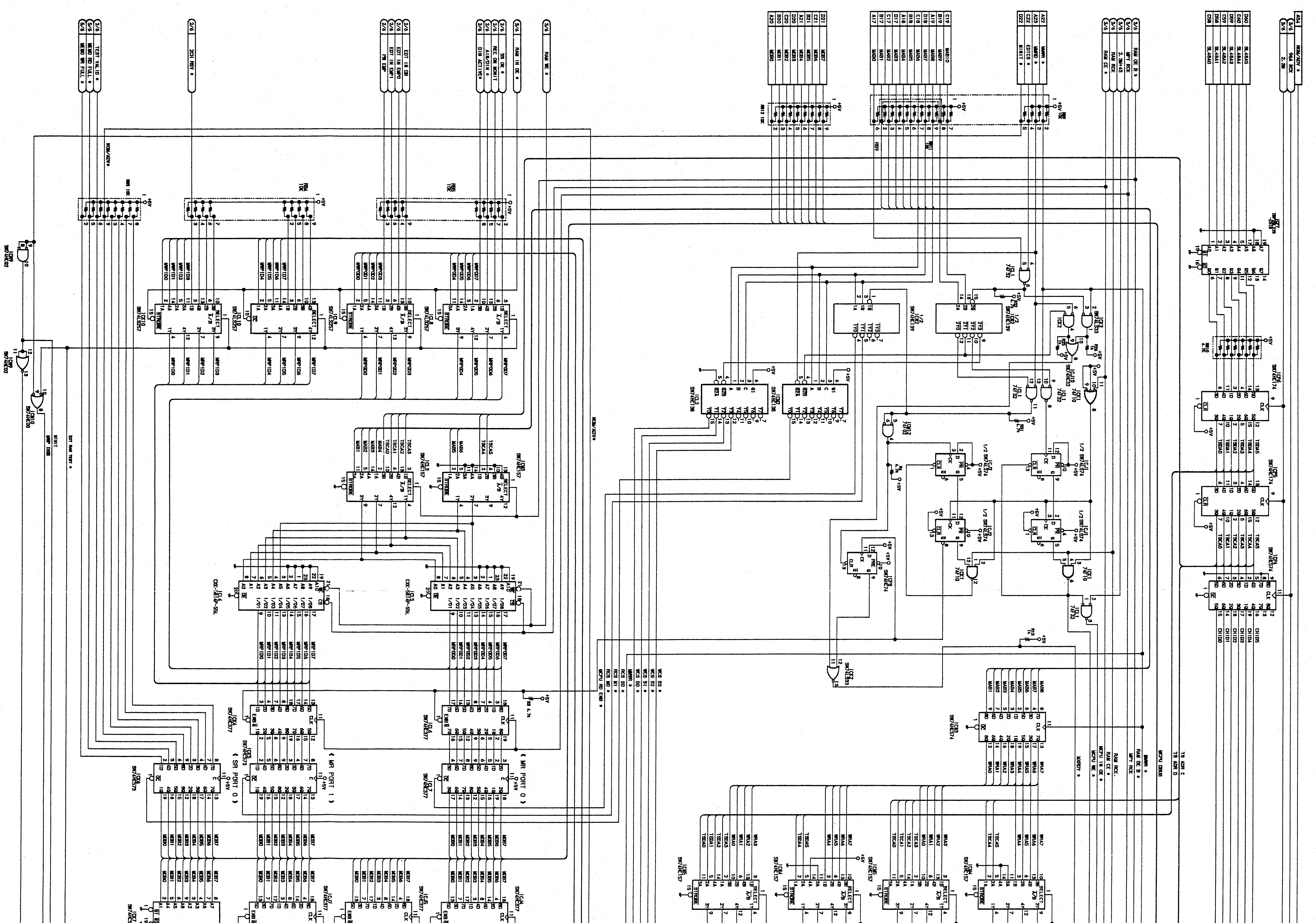

3/4 MEMO RD*
1/4 SLOT LAST*
3/4 LOOP TEST *
1/4 S.SYNC 2.3
1/4 SLOT TOP *
1/4 ADV RCK *
3/4 MEMO MONIT *
3/4 INP OE *
1/4 RAM CE *
1/4 RAM WE *
1/4 RAM IN OE *
1/4 RAM RCK
1/4 2.3M
1/4 INP RCK
RB10 1K
RB9 1K
D13 EDIT-IN15
C13 EDIT-IN14
B13 EDIT-IN13
A13 EDIT-IN12
D12 EDIT-IN11
C12 EDIT-IN10
B12 EDIT-IN 9
A12 EDIT-IN 8
D11 EDIT-IN 7
C11 EDIT-IN 6
B11 EDIT-IN 5
A11 EDIT-IN 4
D10 EDIT-IN 3
C10 EDIT-IN 2
B10 EDIT-IN 1
A10 EDIT-IN 0
ICP3 SN74ALS574
ICP2 SN74ALS574
ICM3 CXK5816SP-12 L
ICM2 CXK5816SP-12 L
ICM3 SN74LS669
ICM2 SN74LS669
ADIN15
ADIN14
ADIN13
ADIN12
ADIN11
ADIN10
ADIN 9
ADIN 8
ADIN 7
ADIN 6
ADIN 5
ADIN 4
ADIN 3
ADIN 2
ADIN 1
ADIN 0
INA5
INA4
INA3
INA2
INA1
INA0
ICL3 SN74ALS574
ICL2 SN74ALS574
INPD15
INPD14
INPD13
INPD12
INPD11
INPD10
INPD 9
INPD 8
INPD 7
INPD 6
INPD 5
INPD 4
INPD 3
INPD 2
INPD 1
INPD 0
ICF8 74F373
ICF9 74F373
IC08 SN74LS377
IC09 SN74LS377
IC06 SN74LS377
IC07 SN74LS377
R47 4.7k
XBUS15
XBUS14
XBUS13
XBUS12
XBUS11
XBUS10
XBUS 9
XBUS 8
XBUS 7
XBUS 6
XBUS 5
XBUS 4
XBUS 3
XBUS 2
XBUS 1
XBUS 0
MEMO15
MEMO14
MEMO13
MEMO12
MEMO11
MEMO10
MEMO 9
MEMO 8
MEMO 7
MEMO 6
MEMO 5
MEMO 4
ICJ4
3/4 X-BUS
2/4 ADV OUT
3/4 XPB OUT
ICF3 SN74LS157
ICE3 SN74LS157
ICF2 SN74LS157
ICE2 SN74LS157
ICK3 SN74LS157
ICJ3 SN74LS157
ICK2 SN74LS157
ICJ2 SN74LS157
XPB15
XPB14
XPB13
XPB12
ADV15
ADV14
ADV13
ADV12
XPB11
XPB10
XPB 9
XPB 8
ADV11
ADV10
ADV 9
ADV 8
XPB 7
XPB 6
XPB 5
XPB 4
ADV 7
ADV 6
ADV 5
ADV 4
XPB 3
XPB 2
XPB 1
XPB 0
ADV 3
ADV 2
ADV 1
ADV 0
PBM15
PBM14
PBM13
PBM12
PBM11
PBM10
PBM 9
PBM 8
PBM 7
PBM 6
PBM 5
PBM 4
PBM 3
PBM 2
PBM 1
PBM 0
INM15
INM14
INM13
INM12
INM11
INM10
INM 9
INM 8
INM 7
INM 6
INM 5
INM 4
INM 3
INM 2
INM 1
INM 0
SELECT
A/B
STROBE
ICJ1 SN74HC00
1/2 ICK1 SN74HC74
ICL1 SN74HC574
ICK1 SN74HC574
RB5 1K
RB4 1K
NOM/ADV * S7
R4 10k
+5V
ICN10 SN74HC151
R39 4.7k
R38 4.7k
3/4 NOM EMP
ICP10 SN74HC08
C40 MEMO-EMP
3/4 COPY EMP
B40 INP-EMP
ICP10
ICH1
ICH1 SN74HC00
3/4 PIB SEL 0
3/4 PIB SEL 1
3/4 PUNCH IN *
R20 10k
R19 10k
C41 MONI-MUTE
D41 MONI-MODE

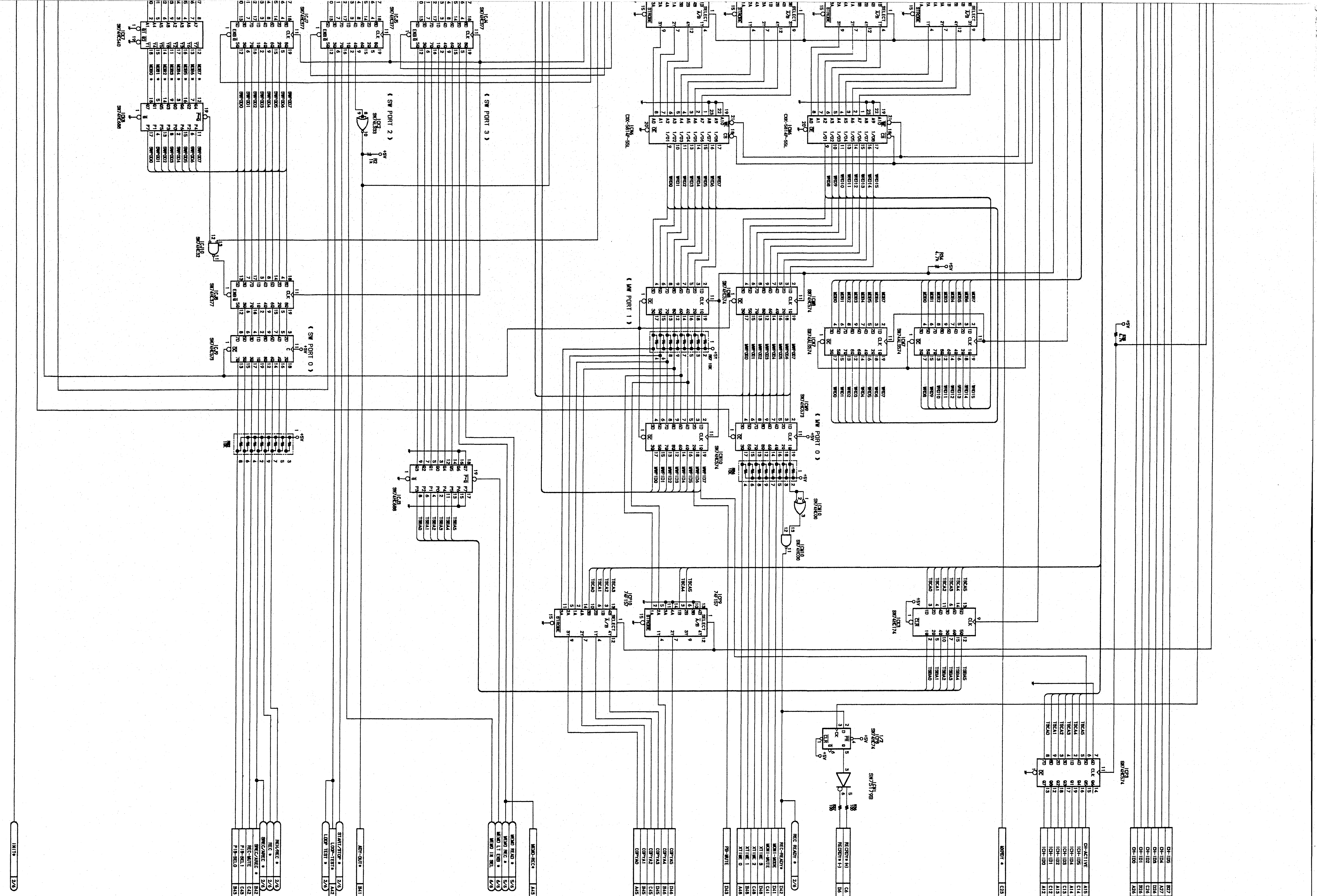

ICB3 SN74LS157
ICH3 SN74LS157
ICB2 SN74LS157
ICH2 SN74LS157
ICJ4 SN74HC00
ICA4 SN74HC86
ICA3 SN74HC10
ICA2 SN74HC02
ICA3
ICA2
NOM/TEST* S4
RANDOM/SIN* S3
E-E/NOM* S1
S2
10K×4
ICA5 SN74HC148
ICA1 SN74HC04
ICA10 SN74HC163
ICA11 SN74HC163
ICD2 SN74HC163
ICD1 SN74HC163
ICD7 TBP28L22-SINH
ICD6 TBP28L22-SINL
ICD12 SN74HC164
ICD8 SN74HC164
ICD9 SN74HC164
ICF8 SN74ALS574
ICF9 SN74ALS574
ICF7 SN74ALS574
ICF6 SN74ALS574
ICJ10 74F86
48WDA0
48WDA1
48WDA2
48WDA3
48WDA4
48WDA5
INPD 0
INPD 1
INPD 2
INPD 3
INPD 4
INPD 5
INPD 6
INPD 7
INPD 8
INPD 9
INPD10
INPD11
INPD12
INPD13
INPD14
INPD15
MEMO 4
MEMO 5
MEMO 6
MEMO 7
MEMO 8
MEMO 9
MEMO10
MEMO11
MEMO12
MEMO13
MEMO14
MEMO15
INM 0
INM 1
INM 2
INM 3
INM 4
INM 5
INM 6
INM 7
INM 8
INM 9
INM10
INM11
INM12
INM13
INM14
INM15
+5V
E-E* 1/4
E-E * C19
INP OUT 3/4
ADV-OUT* B41
DA-EMP A9
EDIT-DA15 D8
EDIT-DA14 C8
EDIT-DA13 B8
EDIT-DA12 A8
EDIT-DA11 D7
EDIT-DA10 C7
EDIT-DA 9 B7
EDIT-DA 8 A7
EDIT-DA 7 D6
EDIT-DA 6 C6
EDIT-DA 5 B6
EDIT-DA 4 A6
EDIT-DA 3 D5
EDIT-DA 2 C5
EDIT-DA 1 B5
EDIT-DA 0 A5
XPB EMP 3/4
INP EMP 3/4

EDIT

ED-19 BOARD (4/4)

BOARD NO.1-627-110-11 & HIGHER
PCM-3348

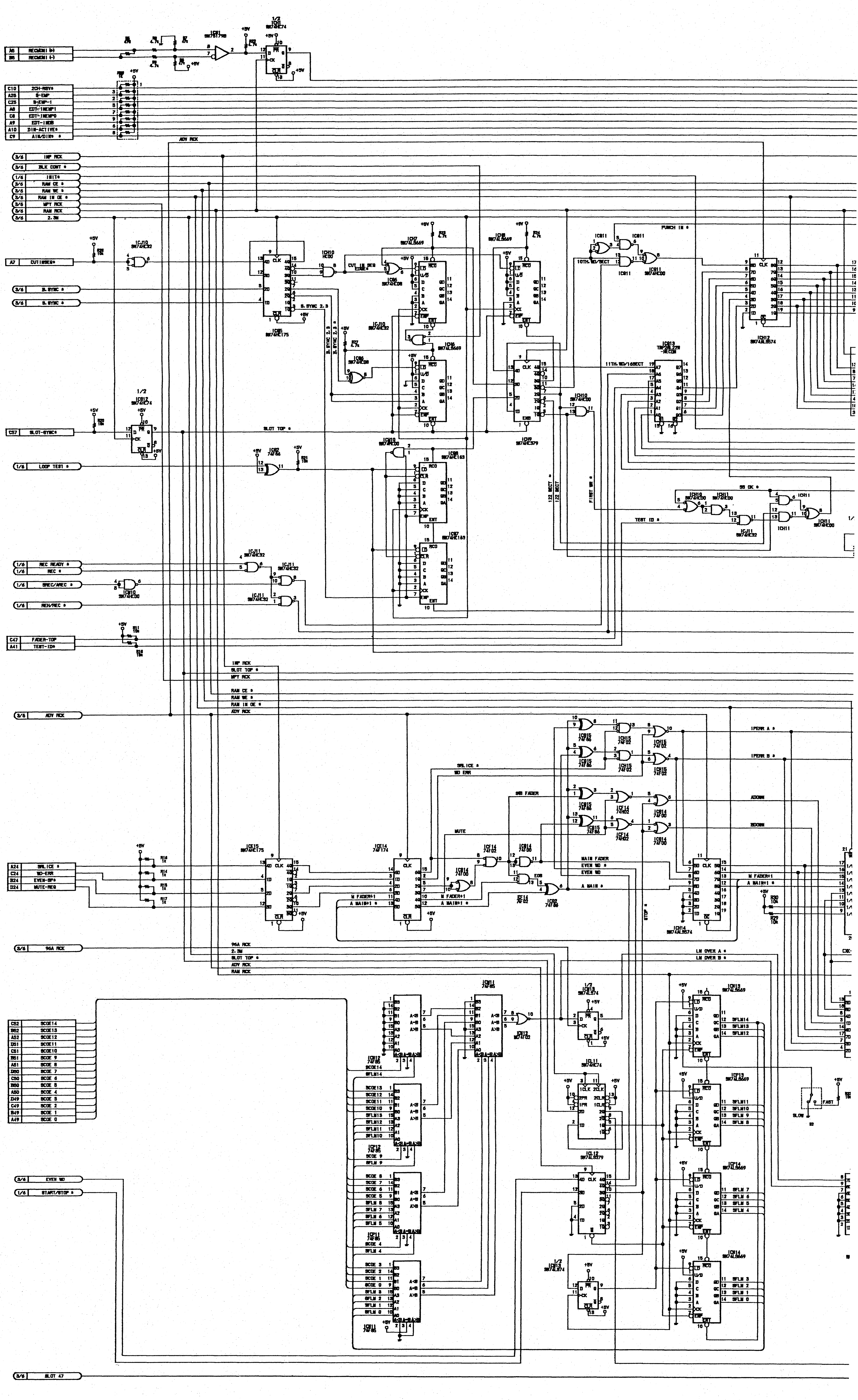

SN74LS257
SN74HC157
SN74HC377
SN74HC373
SN74HC574
SN74HC138
SN74HC139
SN74HC174
SN74HC74
SN74HC32
SN74HC02
SN74HC00
74F32
74F10
CXK-5816P-SSL
+5V
(WR PORT 0)
(WR PORT 1)
(SR PORT 0)
STROBE
SELECT

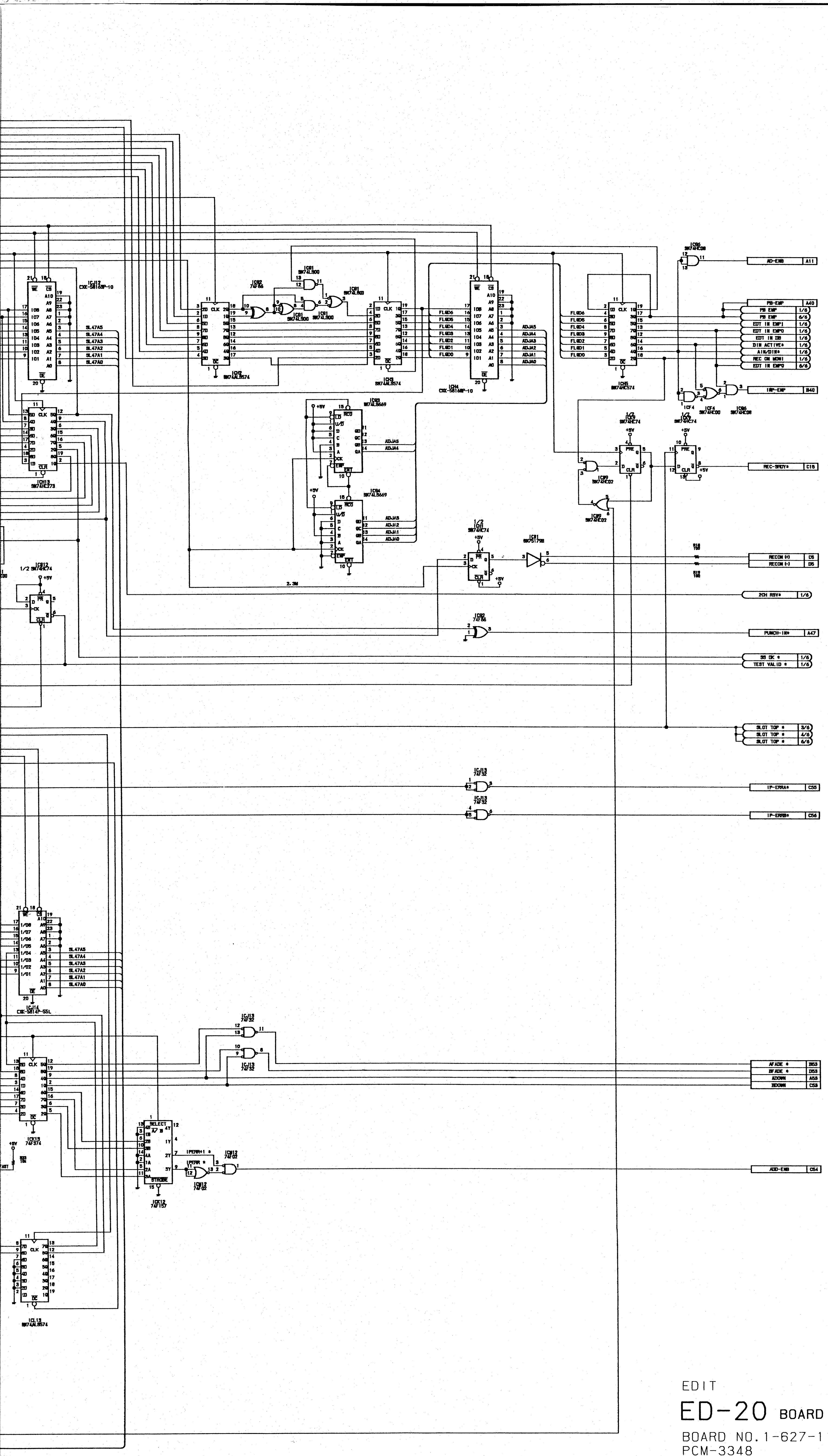

(SW PORT 0)
(SW PORT 2)
(SW PORT 3)
(WW PORT 1)
(WW PORT 0)
INIT*
ADV-OUT*
MEMO-REC*
PB-MUTE
REC READY *

EDIT

ED-20 BOARD (1/6)

BOARD NO.1-627-111-11 & HIGHER
PCM-3348


RECMONI (+)
RECMONI (-)
2CH-RSV*
8-EMP
8-EMP-1
EDT-INEMP1
EDT-INEMP0
EDT-INDB
DIN-ACTIVE*
AIN/DIN* *
ADV MCK
IMP MCK
BLK CONT *
INIT*
RAM CE *
RAM WE *
RAM IN OE *
MPT MCK
RAM MCK
2.3M
CUT/ERASE*
B.SYNC *
SLOT-SYNC*
SLOT TOP *
LOOP TEST *
REC READY *
REC *
SREC/AREC *
REH/REC *
FADER-TOP
TEST-ID*
PUNCH IN *
10TH.WD/SECT
11TH.WD/16SECT
122 SECT *
122 SECT
FIRST WR *
SS OK *
TEST ID *
SPLICE *
WD-ERR
EVEN-SP*
MUTE-REQ
WD ERR
SUB FADER
MUTE
MAIN FADER
EVEN WD *
EVEN WD
A MAIN *
M FADER+1
A MAIN+1 *
IPERR A *
IPERR B *
ADOWN
BDOWN
96A MCK
LM OVER A *
LM OVER B *
STOP *
SCOE14
SCOE13
SCOE12
SCOE11
SCOE10
SCOE 9
SCOE 8
SCOE 7
SCOE 6
SCOE 5
SCOE 4
SCOE 3
SCOE 2
SCOE 1
SCOE 0
SFLM14
SFLM13
SFLM12
SFLM11
SFLM10
SFLM 9
SFLM 8
SFLM 7
SFLM 6
SFLM 5
SFLM 4
SFLM 3
SFLM 2
SFLM 1
SFLM 0
EVEN WD
START/STOP *
SLOT 47
FAST
SLOW

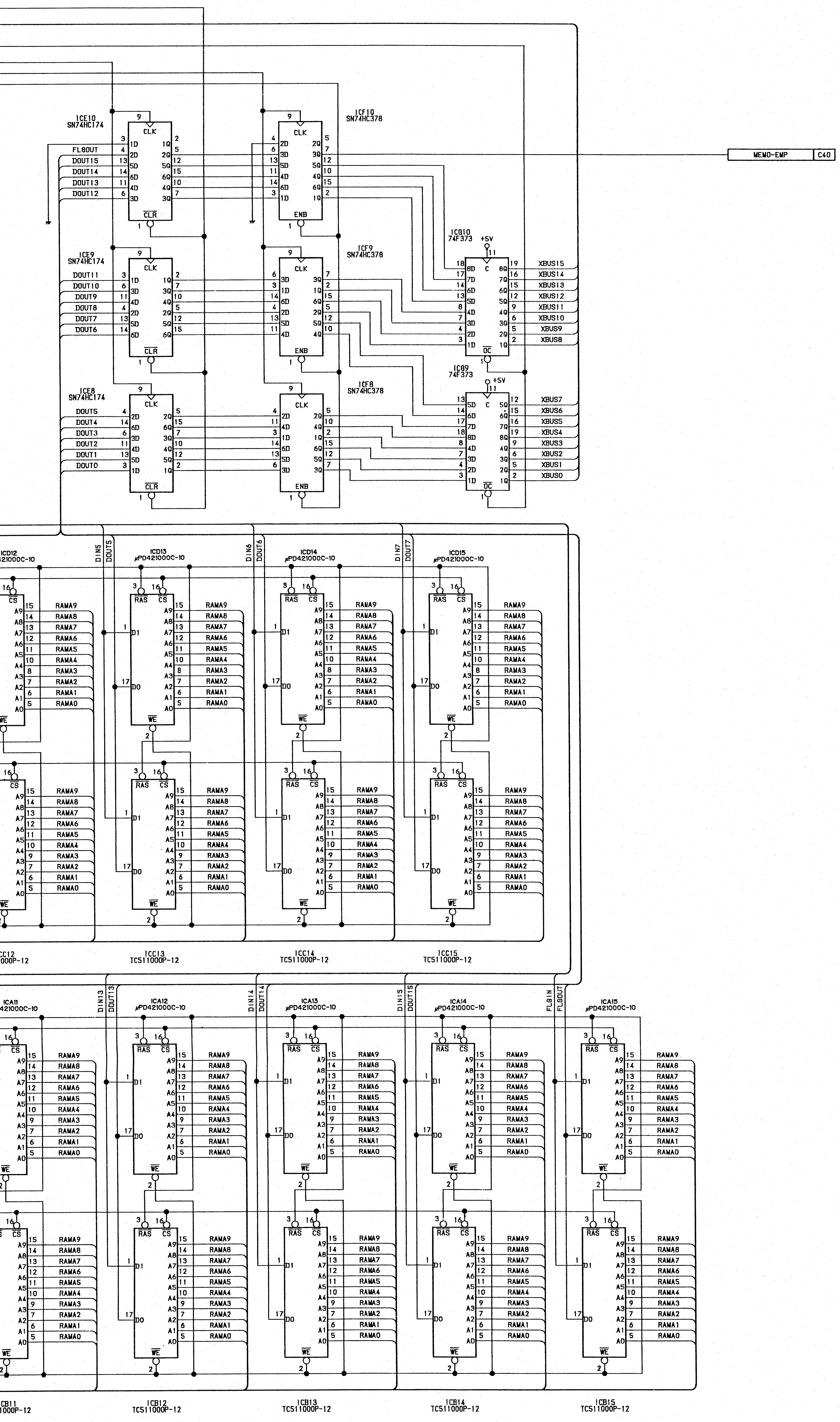

AD-ENB A11
PB-EMP A40
PB EMP 1/6
PB EMP 6/6
EDT IN EMP1 1/6
EDT IN EMP0 1/6
EDT IN DB 1/6
DIN ACTIVE* 1/6
AIN/DIN* 1/6
REC ON MON1 1/6
EDT IN EMP0 6/6
INP-EMP B40
REC-SRDY* C15
RECON (+) D6
RECON (-) D5
2CH RSV* 1/6
PUNCH-IN* A47
SS OK * 1/6
TEST VALID * 1/6
SLOT TOP * 3/6
SLOT TOP * 4/6
SLOT TOP * 6/6
IP-ERRA* C55
IP-ERRB* C56
AFADE * B53
BFADE * D53
ADOWN A53
BDOWN C53
ADD-ENB C54
2.3M
+5V

EDIT

ED-20 BOARD (2/6)

BOARD NO.1-627-111-11 & HIGHER

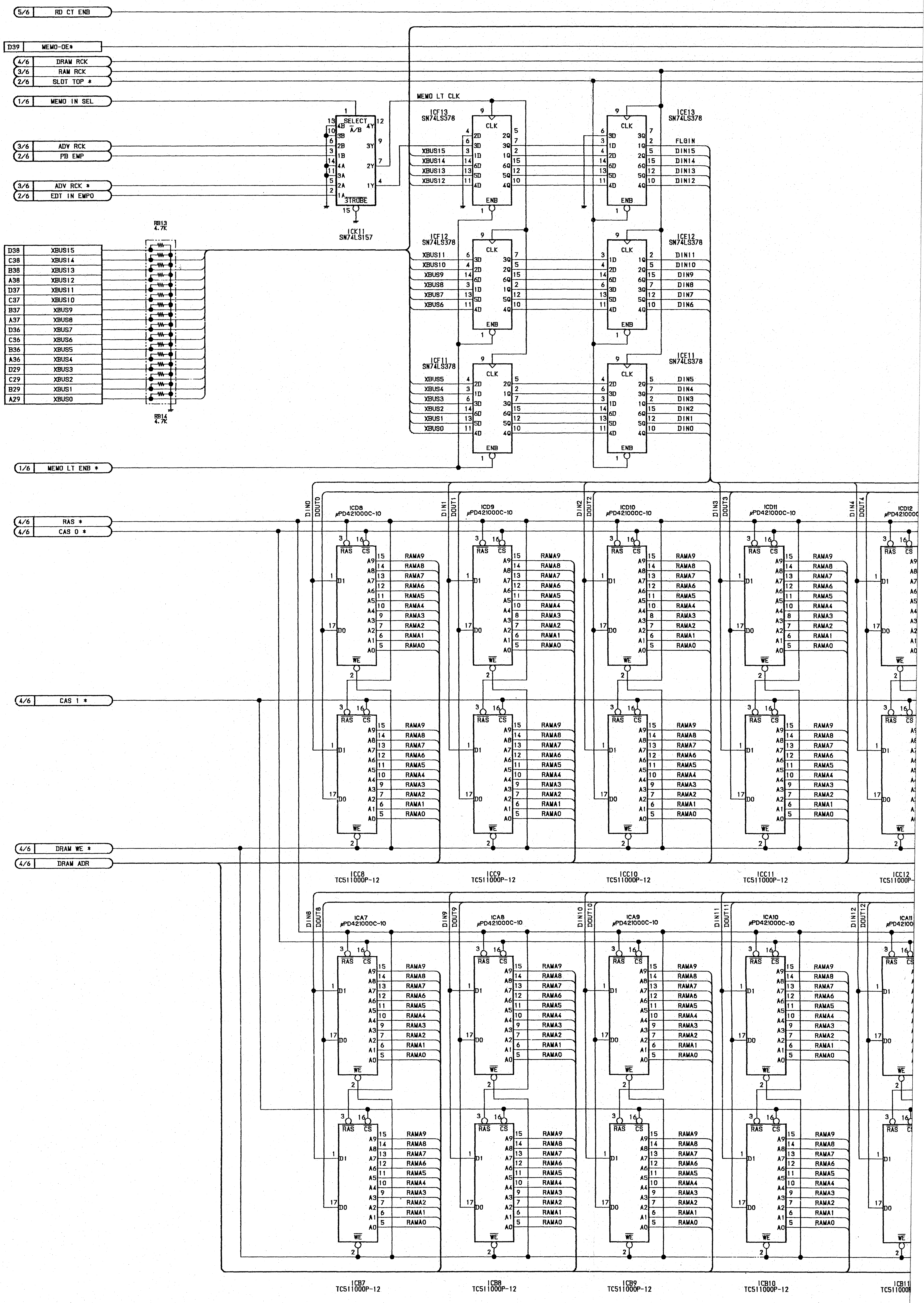
PCM-3348

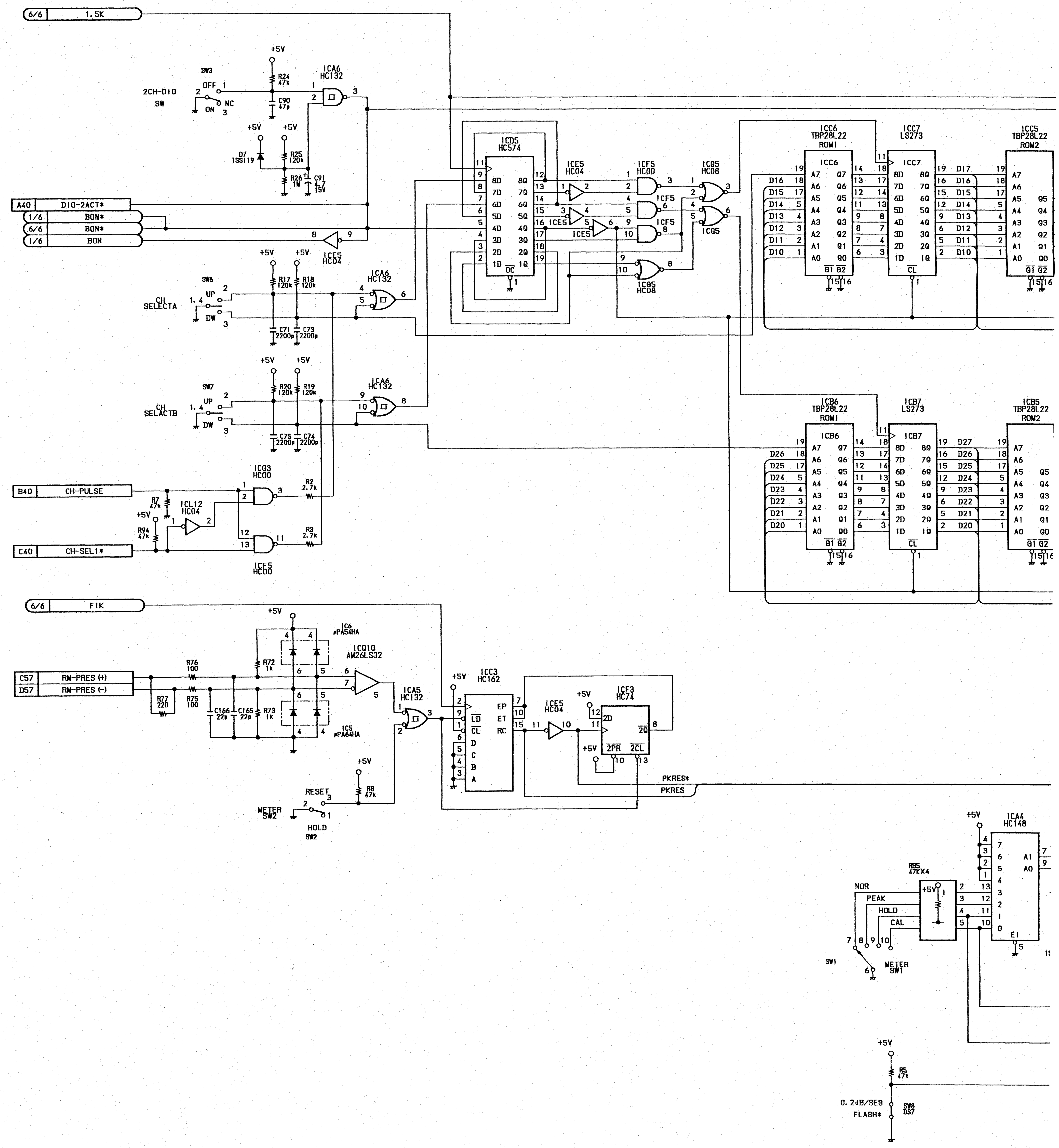

ICE10
SN74HC174
ICE9
SN74HC174
ICE8
SN74HC174
ICF10
SN74HC378
ICF9
SN74HC378
ICF8
SN74HC378
IC010
74F373
IC09
74F373
+5V
MEMO-EMP
C40
FL8OUT
DOUT15
DOUT14
DOUT13
DOUT12
DOUT11
DOUT10
DOUT9
DOUT8
DOUT7
DOUT6
DOUT5
DOUT4
DOUT3
DOUT2
DOUT1
DOUT0
XBUS15
XBUS14
XBUS13
XBUS12
XBUS11
XBUS10
XBUS9
XBUS8
XBUS7
XBUS6
XBUS5
XBUS4
XBUS3
XBUS2
XBUS1
XBUS0
CLK
CLR
ENB
OC
DIN5
DOUT5
DIN6
DOUT6
DIN7
DOUT7
DIN13
DOUT13
DIN14
DOUT14
DIN15
DOUT15
FL8IN
FL8OUT
ICD12
μPD421000C-10
ICD13
μPD421000C-10
ICD14
μPD421000C-10
ICD15
μPD421000C-10
ICC12
TC511000P-12
ICC13
TC511000P-12
ICC14
TC511000P-12
ICC15
TC511000P-12
ICA11
μPD421000C-10
ICA12
μPD421000C-10
ICA13
μPD421000C-10
ICA14
μPD421000C-10
ICA15
μPD421000C-10
ICB11
TC511000P-12
ICB12
TC511000P-12
ICB13
TC511000P-12
ICB14
TC511000P-12
ICB15
TC511000P-12
RAS
CS
WE
D1
D0
A9
A8
A7
A6
A5
A4
A3
A2
A1
A0
RAMA9
RAMA8
RAMA7
RAMA6
RAMA5
RAMA4
RAMA3
RAMA2
RAMA1
RAMA0

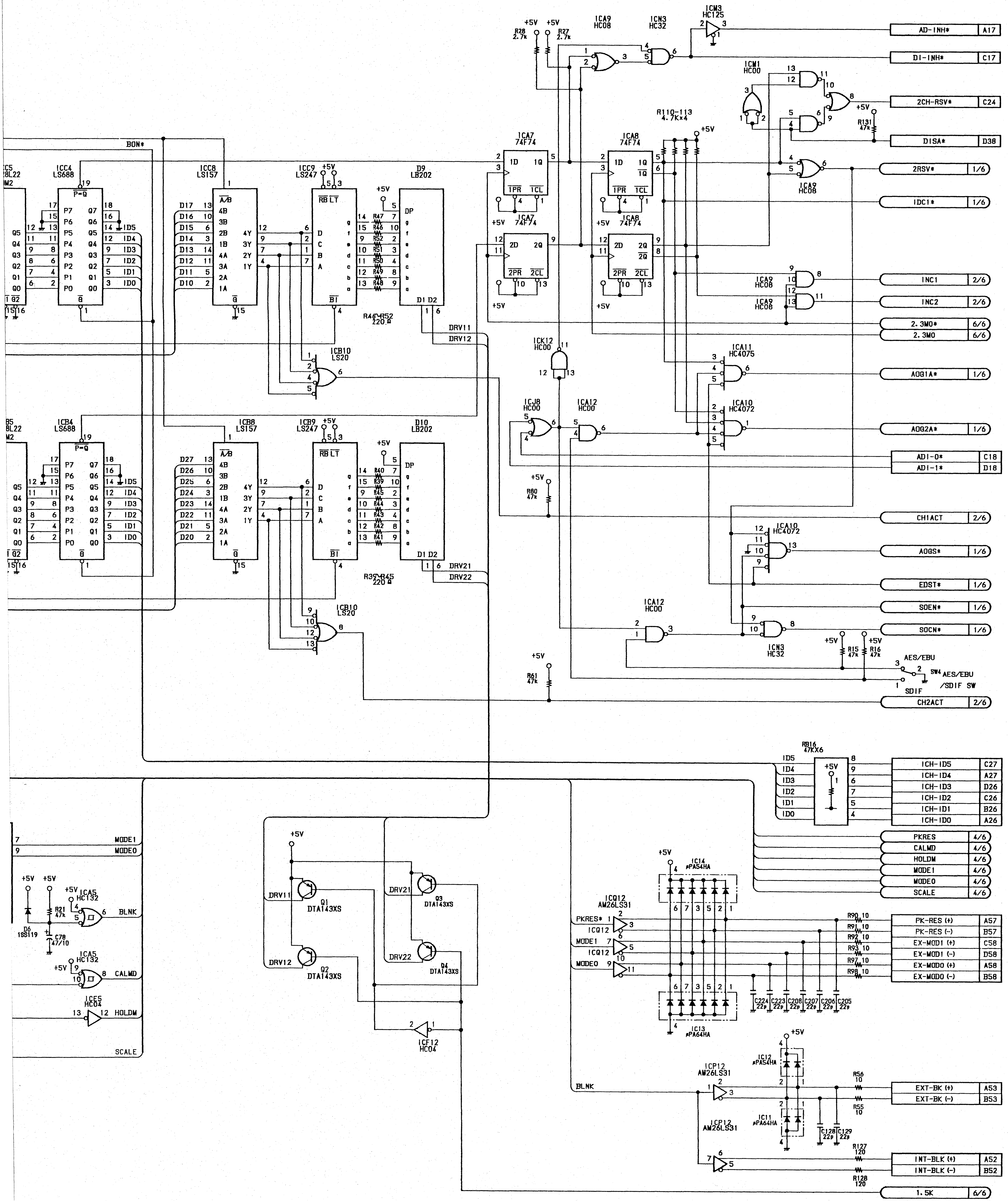
EDIT

ED-20 BOARD (6/6)

BOARD NO.1-627-111-11 & HIGHER
PCM-3348


5/6 RD CT ENB
D39 MEMO-OE*
4/6 DRAM RCK
3/6 RAM RCK
2/6 SLOT TOP *
1/6 MEMO IN SEL
3/6 ADV RCK
2/6 PB EMP
3/6 ADV RCK *
2/6 EDT IN EMPO
D38 XBUS15
C38 XBUS14
B38 XBUS13
A38 XBUS12
D37 XBUS11
C37 XBUS10
B37 XBUS9
A37 XBUS8
D36 XBUS7
C36 XBUS6
B36 XBUS5
A36 XBUS4
D29 XBUS3
C29 XBUS2
B29 XBUS1
A29 XBUS0
RB13 4.7K
RB14 4.7K
1/6 MEMO LT ENB *
4/6 RAS *
4/6 CAS 0 *
4/6 CAS 1 *
4/6 DRAM WE *
4/6 DRAM ADR
ICK11 SN74LS157
SELECT A/B
STROBE
MEMO LT CLK
ICF13 SN74LS378
ICF12 SN74LS378
ICF11 SN74LS378
ICE13 SN74LS378
ICE12 SN74LS378
ICE11 SN74LS378
CLK
ENB
FLGIN
DIN15
DIN14
DIN13
DIN12
DIN11
DIN10
DIN9
DIN8
DIN7
DIN6
DIN5
DIN4
DIN3
DIN2
DIN1
DIN0
DOUT0
DOUT1
DOUT2
DOUT3
DOUT4
DOUT8
DOUT9
DOUT10
DOUT11
DOUT12
ICD8 µPD421000C-10
ICD9 µPD421000C-10
ICD10 µPD421000C-10
ICD11 µPD421000C-10
ICD12 µPD421000C
ICC8 TC511000P-12
ICC9 TC511000P-12
ICC10 TC511000P-12
ICC11 TC511000P-12
ICC12 TC511000P
ICA7 µPD421000C-10
ICA8 µPD421000C-10
ICA9 µPD421000C-10
ICA10 µPD421000C-10
ICA11 µPD421000
ICB7 TC511000P-12
ICB8 TC511000P-12
ICB9 TC511000P-12
ICB10 TC511000P-12
ICB11 TC511000
RAS
CS
WE
D1
D0
RAMA9
RAMA8
RAMA7
RAMA6
RAMA5
RAMA4
RAMA3
RAMA2
RAMA1
RAMA0

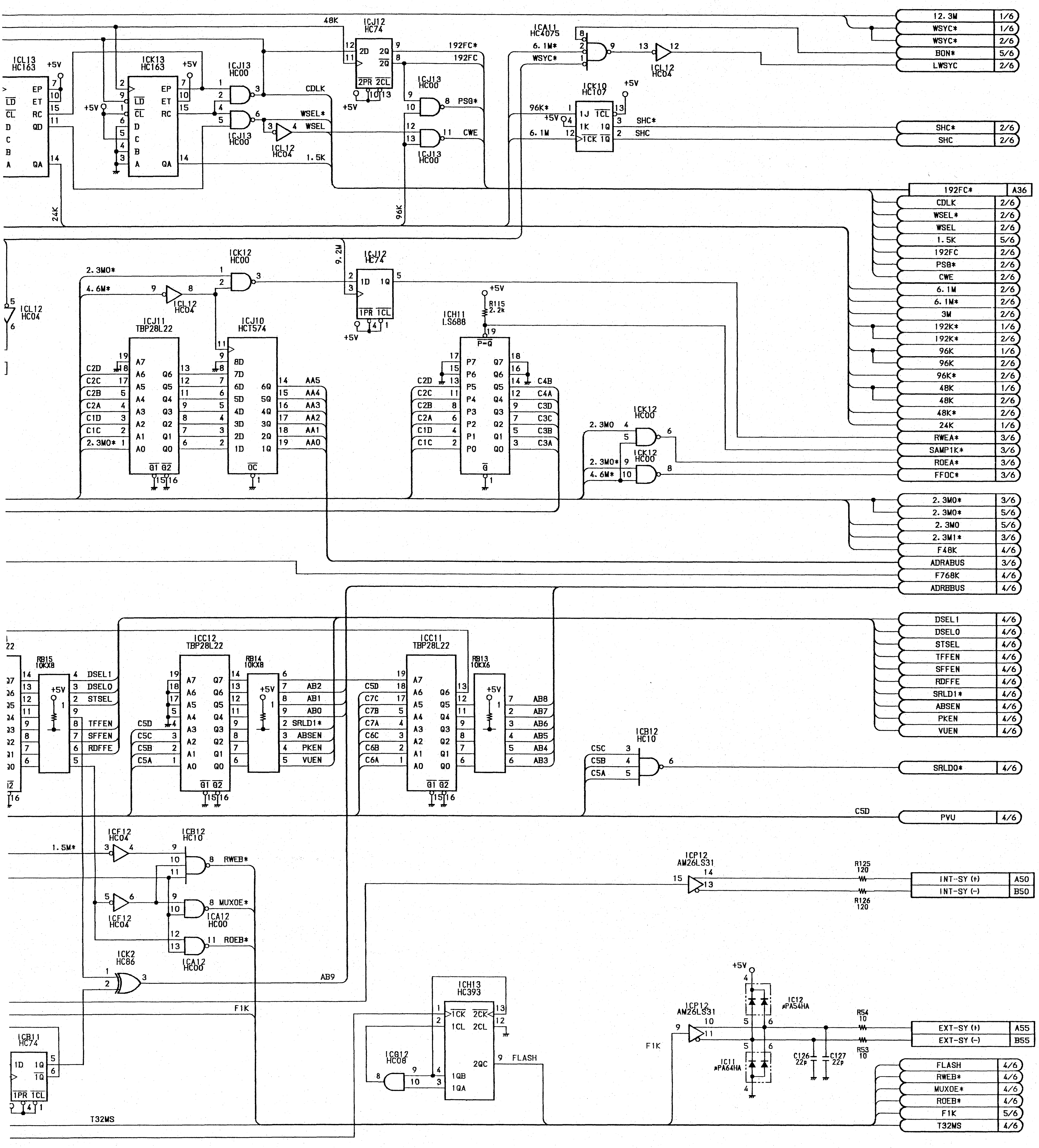

6/6 1.5K
2CH-DIO SW
SW3
OFF
ON
NC
+5V
R24 47k
C90 47p
ICA6 HC132
D7 1SS119
R25 120k
R26 1M
C91 4.7 15V
A40 DIO-2ACT*
1/6 BON*
6/6 BON*
1/6 BON
ICE5 HC04
ICD5 HC574
ICE5 HC04
ICF5 HC00
ICB5 HC08
ICB5
ICF5
ICE5
ICB5 HC08
CH SELECTA
SW6
UP
DW
R17 120k
R18 120k
C71 2200p
C73 2200p
ICA6 HC132
CH SELECTB
SW7
R20 120k
R19 120k
C75 2200p
C74 2200p
B40 CH-PULSE
C40 CH-SEL1*
R7 47k
R94 47k
ICL12 HC04
ICB3 HC00
ICF5 HC00
R2 2.7k
R3 2.7k
ICC6 TBP28L22 ROM1
ICC7 LS273
ICC5 TBP28L22 ROM2
ICB6 TBP28L22 ROM1
ICB7 LS273
ICB5 TBP28L22 ROM2
D10 D11 D12 D13 D14 D15 D16 D17
D20 D21 D22 D23 D24 D25 D26 D27
6/6 F1K
C57 RM-PRES (+)
D57 RM-PRES (-)
R76 100
R75 100
R77 220
C166 22p
C165 22p
R72 1k
R73 1k
IC6 μPA54HA
IC5 μPA64HA
ICQ10 AM26LS32
ICA5 HC132
RESET
METER SW2
HOLD SW2
R8 47k
ICC3 HC162
ICE5 HC04
ICF3 HC74
PKRES*
PKRES
ICA4 HC148
RB5 47KX4
NOR
PEAK
HOLD
CAL
SW1
METER SW1
R5 47k
0.2dB/SEG
FLASH*
SW8 DS7


ICM3 HC125
AD-INH* A17
ICA9 HC08
ICN3 HC32
DI-INH* C17
R28 2.7k
R27 2.7k
ICM1 HC00
2CH-RSV* C24
R110-113 4.7kx4
R131 47k
DISA* D38
ICA7 74F74
ICA8 74F74
2RSV* 1/6
IDC1* 1/6
BON*
ICC4 LS688
ICC8 LS157
ICC9 LS247
D9 LB202
R46-R52 220Ω
INC1 2/6
INC2 2/6
2.3MO* 6/6
2.3MO 6/6
DRV11
DRV12
ICK12 HC00
ICB10 LS20
ICA11 HC4075
AOG1A* 1/6
ICJ8 HC00
ICA12 HC00
ICA10 HC4072
AOG2A* 1/6
ADI-0* C18
ADI-1* D18
ICB4 LS688
ICB8 LS157
ICB9 LS247
D10 LB202
R80 47k
CH1ACT 2/6
AOGS* 1/6
R39-R45 220Ω
DRV21
DRV22
EDST* 1/6
SOEN* 1/6
SOCN* 1/6
R15 47k
R16 47k
AES/EBU
SW4 AES/EBU /SDIF SW
SDIF
R61 47k
CH2ACT 2/6
RB16 47kx6
ICH-ID5 C27
ICH-ID4 A27
ICH-ID3 D26
ICH-ID2 C26
ICH-ID1 B26
ICH-ID0 A26
PKRES 4/6
CALMD 4/6
HOLDM 4/6
MODE1 4/6
MODE0 4/6
SCALE 4/6
Q1 DTA143XS
Q2 DTA143XS
Q3 DTA143XS
Q4 DTA143XS
IC14 μPA54HA
IC13 μPA64HA
ICQ12 AM26LS31
PK-RES (+) A57
PK-RES (-) B57
EX-MOD1 (+) C58
EX-MOD1 (-) D58
EX-MOD0 (+) A58
EX-MOD0 (-) B58
C224 C223 C208 C207 C206 C205 22p
R90 R91 R92 R93 R97 R98 10
ICA5 HC132
BLNK
CALMD
ICE5 HC04
HOLDM
D6 1SS119
R21 47k
C78 47/10
ICF12 HC04
IC12 μPA54HA
IC11 μPA64HA
ICP12 AM26LS31
EXT-BK (+) A53
EXT-BK (-) B53
R56 10
R55 10
C128 C129 22p
INT-BLK (+) A52
INT-BLK (-) B52
R127 120
R128 120
1.5K 6/6

Meter & AES/EBU DIO

MAE-1 BOARD (5/6)

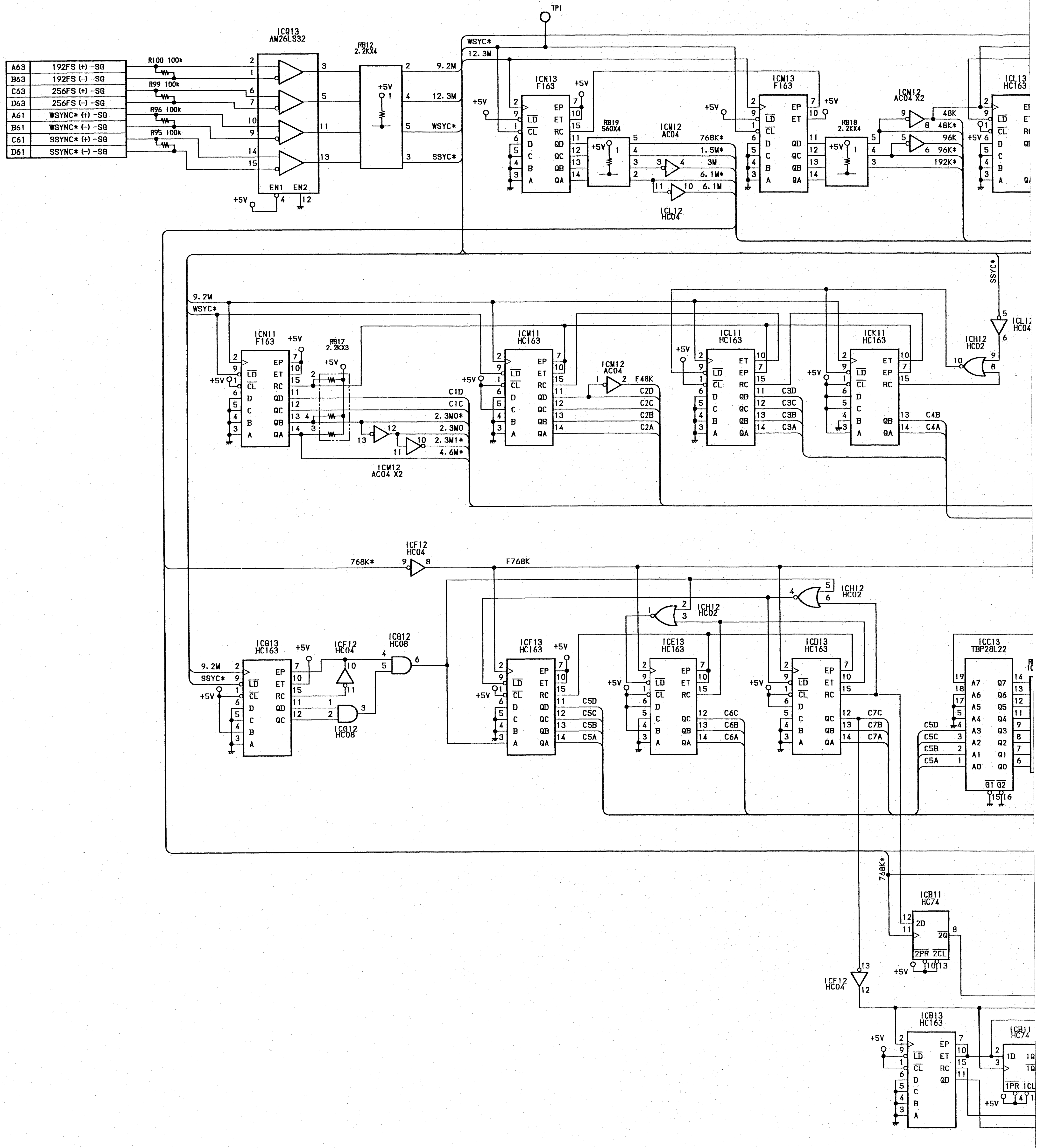
BOARD NO.1-627-118-11 & HIGHER
PCM-3348

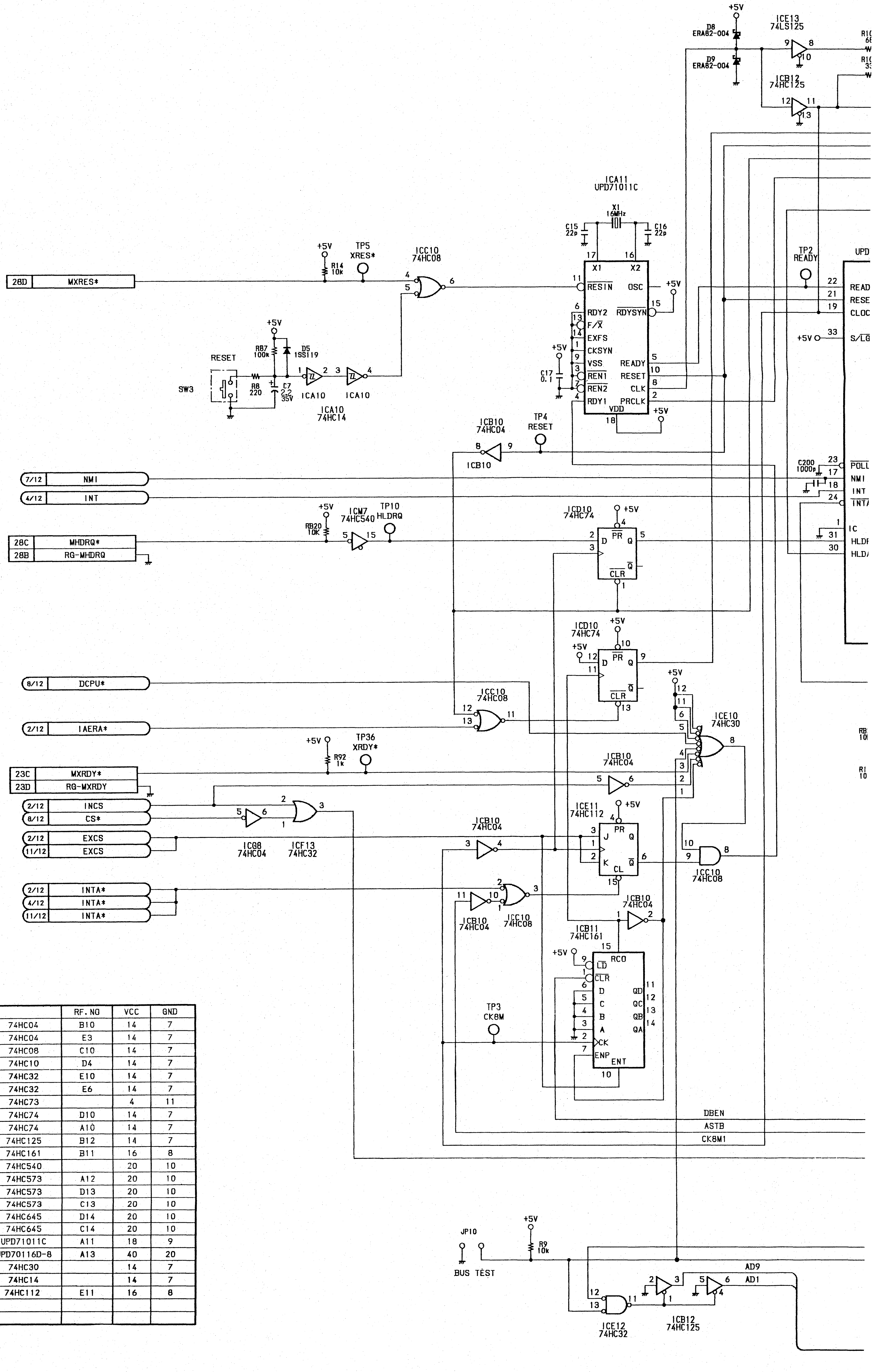

12.3M 1/6
WSYC* 1/6
WSYC* 2/6
BDN* 5/6
LWSYC 2/6
SHC* 2/6
SHC 2/6
192FC* A36
CDLK 2/6
WSEL* 2/6
WSEL 2/6
1.5K 5/6
192FC 2/6
PSB* 2/6
CWE 2/6
6.1M 2/6
6.1M* 2/6
3M 2/6
192K* 1/6
192K* 2/6
96K 1/6
96K 2/6
96K* 2/6
48K 1/6
48K 2/6
48K* 2/6
24K 1/6
RWEA* 3/6
SAMP1K* 3/6
ROEA* 3/6
FFOC* 3/6
2.3MO* 3/6
2.3MO* 5/6
2.3MO 5/6
2.3M1* 3/6
F48K 4/6
ADRABUS 3/6
F768K 4/6
ADRBBUS 4/6
DSEL1 4/6
DSEL0 4/6
STSEL 4/6
TFFEN 4/6
SFFEN 4/6
RDFFE 4/6
SRLD1* 4/6
ABSEN 4/6
PKEN 4/6
VUEN 4/6
SRLD0* 4/6
PVU 4/6
INT-SY (+) A50
INT-SY (-) B50
EXT-SY (+) A55
EXT-SY (-) B55
FLASH 4/6
RWEB* 4/6
MUXOE* 4/6
ROEB* 4/6
F1K 5/6
T32MS 4/6
ICL13 HC163
ICK13 HC163
ICJ13 HC00
ICL12 HC04
ICJ12 HC74
ICA11 HC4075
ICK10 HC107
ICK12 HC00
ICJ11 TBP28L22
ICJ10 HCT574
ICH11 LS688
R115 2.2k
ICC12 TBP28L22
ICC11 TBP28L22
RB15 10KX8
RB14 10KX8
RB13 10KX6
ICB12 HC10
ICF12 HC04
ICA12 HC00
ICK2 HC86
ICB11 HC74
ICH13 HC393
ICB12 HC08
ICP12 AM26LS31
R125 120
R126 120
IC12 μPA54HA
IC11 μPA64HA
R54 10
R53 10
C126 22p
C127 22p
+5V
9.2M
1.5M*
AB9
F1K
C5D

Meter & AES/EBU DIO

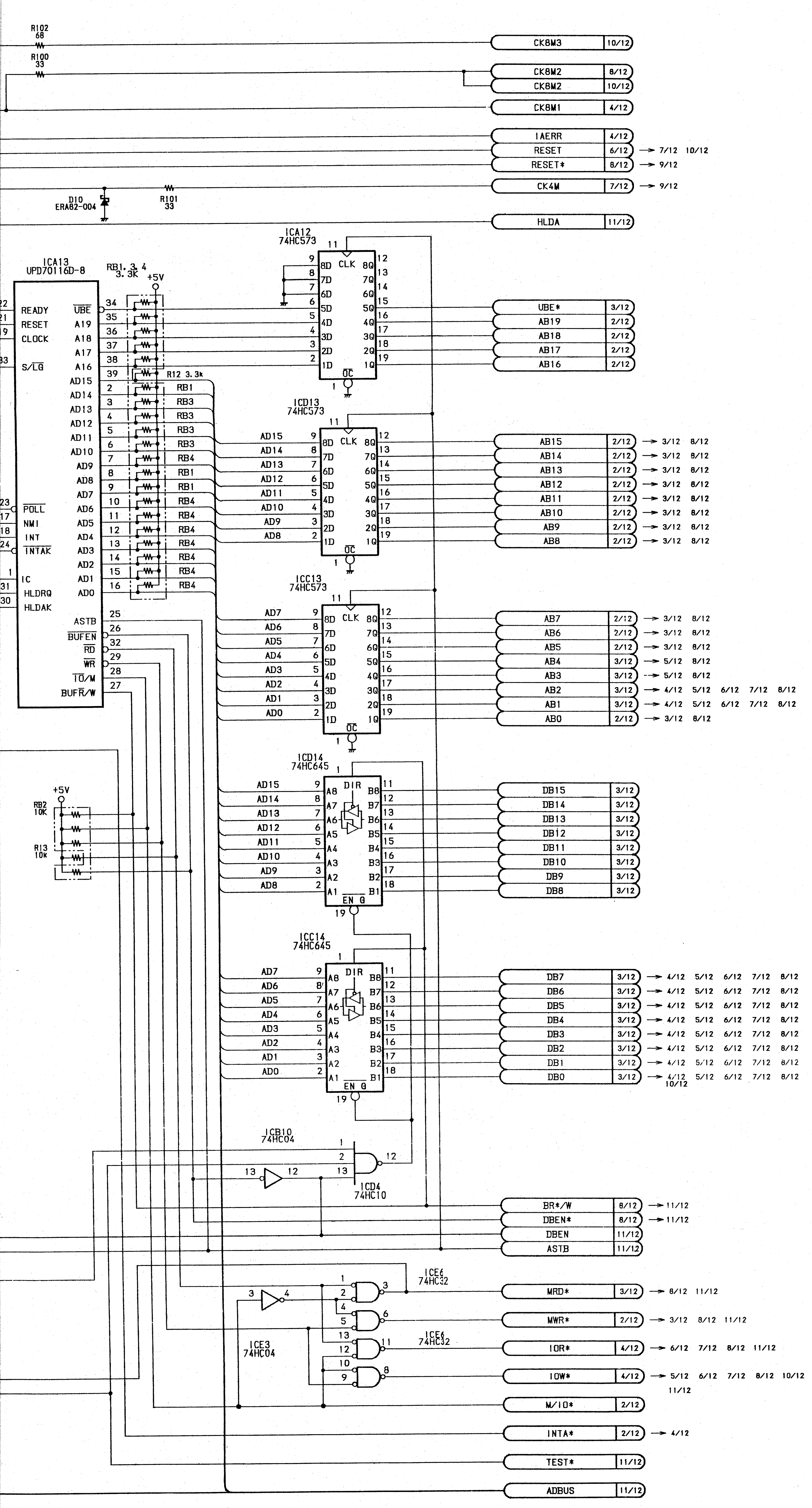
MAE-1 BOARD (6/6)

BOARD NO.1-627-118-11 & HIGHER
PCM-3348


A63 192FS (+) -SG
B63 192FS (-) -SG
C63 256FS (+) -SG
D63 256FS (-) -SG
A61 WSYNC* (+) -SG
B61 WSYNC* (-) -SG
C61 SSYNC* (+) -SG
D61 SSYNC* (-) -SG
R100 100k
R99 100k
R96 100k
R95 100k
ICQ13 AM26LS32
EN1 EN2
+5V
RB12 2.2KX4
9.2M
12.3M
WSYC*
SSYC*
TP1
ICN13 F163
EP ET RC QD QC QB QA
LD CL D C B A
RB19 560X4
ICM12 AC04
768K*
1.5M*
3M
6.1M*
6.1M
ICL12 HC04
ICM13 F163
RB18 2.2KX4
ICM12 AC04 X2
48K
48K*
96K
96K*
192K*
ICL13 HC163
ICN11 F163
RB17 2.2KX3
C1D
C1C
2.3MO*
2.3MO
2.3M1*
4.6M*
ICM12 AC04 X2
ICM11 HC163
ICM12 AC04
F48K
C2D
C2C
C2B
C2A
ICL11 HC163
C3D
C3C
C3B
C3A
ICK11 HC163
C4B
C4A
ICH12 HC02
ICL12 HC04
ICF12 HC04
768K*
F768K
ICG13 HC163
ICF12 HC04
ICG12 HC08
ICG12 HC08
ICF13 HC163
C5D
C5C
C5B
C5A
ICE13 HC163
ICH12 HC02
C6C
C6B
C6A
ICD13 HC163
ICH12 HC02
C7C
C7B
C7A
ICC13 TBP28L22
A7 A6 A5 A4 A3 A2 A1 A0
Q7 Q6 Q5 Q4 Q3 Q2 Q1 Q0
G1 G2
768K*
ICB11 HC74
2D 2Q 2PR 2CL
ICF12 HC04
ICB13 HC163
ICB11 HC74
1D 1Q 1PR 1CL


+5V
ICE13
74LS125
D8
ERA82-004
D9
ERA82-004
ICB12
74HC125
ICA11
UPD71011C
X1
16MHz
C15
22p
C16
22p
TP2
READY
UPD
28D
MXRES*
+5V
R14
10k
TP5
XRES*
ICC10
74HC08
RESIN
OSC
RDY2
RDYSYN
F/X
EXFS
CKSYN
VSS
READY
REN1
RESET
REN2
CLK
RDY1
PRCLK
VDD
C17
0.1
READ
RESE
CLOC
S/LG
RESET
SW3
R87
100k
D5
1SS119
R8
220
C7
2.2
35V
ICA10
ICA10
ICA10
74HC14
ICB10
74HC04
ICB10
TP4
RESET
C200
1000p
POLL
NMI
INT
INTA
IC
HLDR
HLDA
7/12
NMI
4/12
INT
ICM7
74HC540
TP10
HLDRQ
RB20
10K
28C
MHDRQ*
28B
RG-MHDRQ
ICD10
74HC74
PR
CLR
8/12
DCPU*
ICC10
74HC08
2/12
IAERA*
ICE10
74HC30
TP36
XRDY*
R92
1k
23C
MXRDY*
23D
RG-MXRDY
ICB10
74HC04
2/12
INCS
8/12
CS*
ICG8
74HC04
ICF13
74HC32
2/12
EXCS
11/12
EXCS
ICE11
74HC112
ICB10
74HC04
ICC10
74HC08
2/12
INTA*
4/12
INTA*
11/12
INTA*
ICB10
74HC04
ICC10
74HC08
ICB10
74HC04
ICB11
74HC161
RCO
LD
CLR
QD
QC
QB
QA
ENP
ENT
CK
TP3
CK8M
DBEN
ASTB
CK8M1
JP10
BUS TEST
R9
10k
AD9
AD1
ICE12
74HC32
ICB12
74HC125
RB
10
R1
10

	RF.NO	VCC	GND
74HC04	B10	14	7
74HC04	E3	14	7
74HC08	C10	14	7
74HC10	D4	14	7
74HC32	E10	14	7
74HC32	E6	14	7
74HC73		4	11
74HC74	D10	14	7
74HC74	A10	14	7
74HC125	B12	14	7
74HC161	B11	16	8
74HC540		20	10
74HC573	A12	20	10
74HC573	D13	20	10
74HC573	C13	20	10
74HC645	D14	20	10
74HC645	C14	20	10
UPD71011C	A11	18	9
UPD70116D-8	A13	40	20
74HC30		14	7
74HC14		14	7
74HC112	E11	16	8

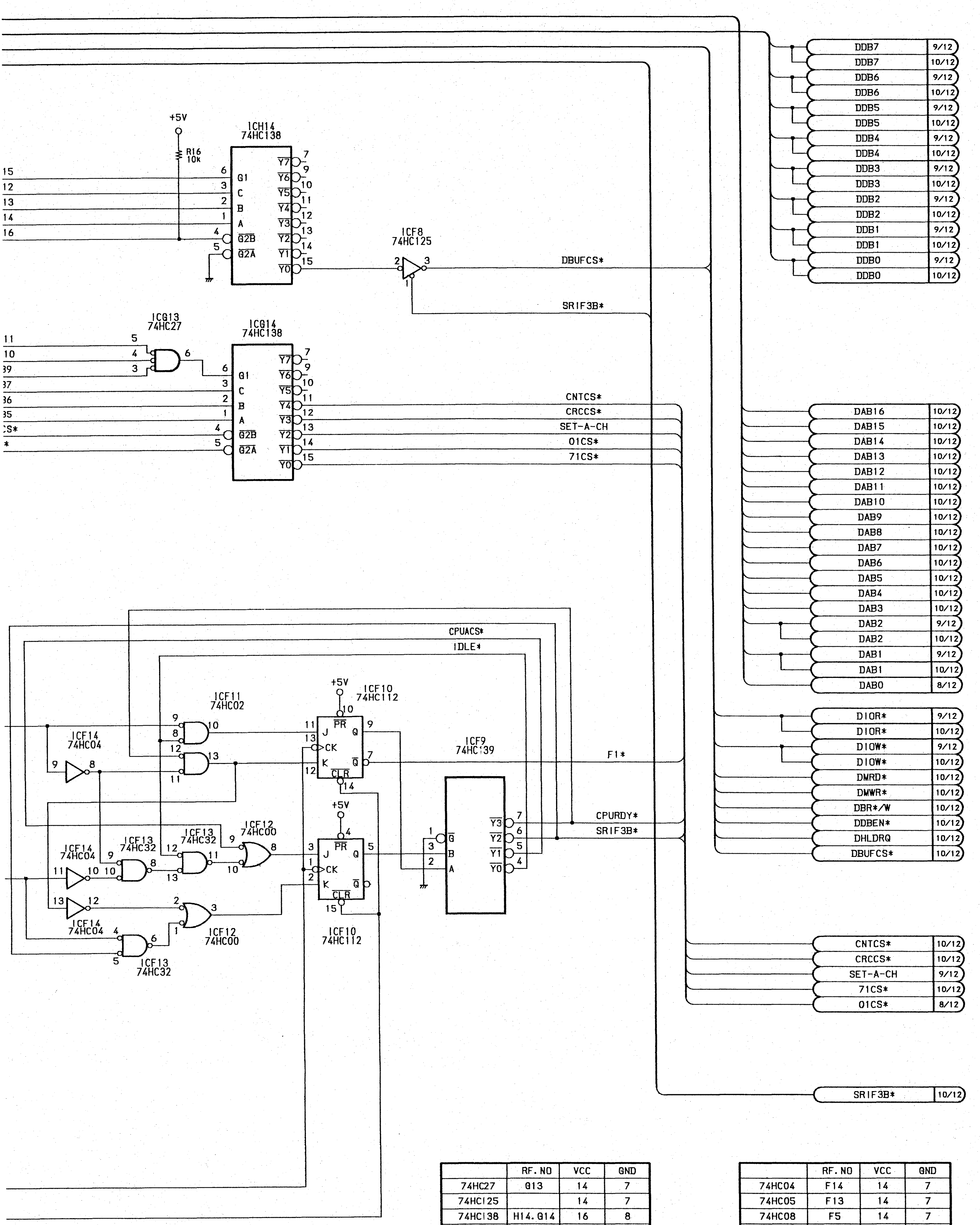


R102 68
R100 33
R101 33
D10 ERA82-004
ICA13 UPD70116D-8
READY
RESET
CLOCK
S/LG
POLL
NMI
INT
INTAK
IC
HLDRQ
HLDAK
UBE
A19
A18
A17
A16
AD15
AD14
AD13
AD12
AD11
AD10
AD9
AD8
AD7
AD6
AD5
AD4
AD3
AD2
AD1
AD0
ASTB
BUFEN
RD
WR
IO/M
BUFR/W
RB1,3,4 3.3K
+5V
R12 3.3k
RB1
RB3
RB4
RB2 10K
R13 10k
ICA12 74HC573
ICD13 74HC573
ICC13 74HC573
ICD14 74HC645
ICC14 74HC645
ICB10 74HC04
ICD4 74HC10
ICE6 74HC32
ICE3 74HC04
CLK
OC
DIR
EN G
CK8M3 10/12
CK8M2 8/12
CK8M2 10/12
CK8M1 4/12
IAERR 4/12
RESET 6/12 → 7/12 10/12
RESET* 8/12 → 9/12
CK4M 7/12 → 9/12
HLDA 11/12
UBE* 3/12
AB19 2/12
AB18 2/12
AB17 2/12
AB16 2/12
AB15 2/12 → 3/12 8/12
AB14 2/12 → 3/12 8/12
AB13 2/12 → 3/12 8/12
AB12 2/12 → 3/12 8/12
AB11 2/12 → 3/12 8/12
AB10 2/12 → 3/12 8/12
AB9 2/12 → 3/12 8/12
AB8 2/12 → 3/12 8/12
AB7 2/12 → 3/12 8/12
AB6 2/12 → 3/12 8/12
AB5 2/12 → 3/12 8/12
AB4 3/12 → 5/12 8/12
AB3 3/12 → 5/12 8/12
AB2 3/12 → 4/12 5/12 6/12 7/12 8/12
AB1 3/12 → 4/12 5/12 6/12 7/12 8/12
AB0 2/12 → 3/12 8/12
DB15 3/12
DB14 3/12
DB13 3/12
DB12 3/12
DB11 3/12
DB10 3/12
DB9 3/12
DB8 3/12
DB7 3/12 → 4/12 5/12 6/12 7/12 8/12
DB6 3/12 → 4/12 5/12 6/12 7/12 8/12
DB5 3/12 → 4/12 5/12 6/12 7/12 8/12
DB4 3/12 → 4/12 5/12 6/12 7/12 8/12
DB3 3/12 → 4/12 5/12 6/12 7/12 8/12
DB2 3/12 → 4/12 5/12 6/12 7/12 8/12
DB1 3/12 → 4/12 5/12 6/12 7/12 8/12
DB0 3/12 → 4/12 10/12 5/12 6/12 7/12 8/12
BR*/W 8/12 → 11/12
DBEN* 8/12 → 11/12
DBEN 11/12
ASTB 11/12
MRD* 3/12 → 8/12 11/12
MWR* 2/12 → 3/12 8/12 11/12
IOR* 4/12 → 6/12 7/12 8/12 11/12
IOW* 4/12 → 5/12 6/12 7/12 8/12 10/12 11/12
M/IO* 2/12
INTA* 2/12 → 4/12
TEST* 11/12
ADBUS 11/12

Main CPU

MC-33/33A BOARD (1/12)

BOARD NO.1-627-112-11 & HIGHER
PCM-3348



DDB7 9/12
DDB7 10/12
DDB6 9/12
DDB6 10/12
DDB5 9/12
DDB5 10/12
DDB4 9/12
DDB4 10/12
DDB3 9/12
DDB3 10/12
DDB2 9/12
DDB2 10/12
DDB1 9/12
DDB1 10/12
DDB0 9/12
DDB0 10/12
DAB16 10/12
DAB15 10/12
DAB14 10/12
DAB13 10/12
DAB12 10/12
DAB11 10/12
DAB10 10/12
DAB9 10/12
DAB8 10/12
DAB7 10/12
DAB6 10/12
DAB5 10/12
DAB4 10/12
DAB3 10/12
DAB2 9/12
DAB2 10/12
DAB1 9/12
DAB1 10/12
DAB0 8/12
DIOR* 9/12
DIOR* 10/12
DIOW* 9/12
DIOW* 10/12
DMRD* 10/12
DMWR* 10/12
DBR*/W 10/12
DDBEN* 10/12
DHLDRQ 10/12
DBUFCS* 10/12
CNTCS* 10/12
CRCCS* 10/12
SET-A-CH 9/12
71CS* 10/12
01CS* 8/12
SRIF3B* 10/12
+5V
R16 10k
ICH14 74HC138
ICF8 74HC125
DBUFCS*
SRIF3B*
ICG13 74HC27
ICG14 74HC138
CNTCS*
CRCCS*
SET-A-CH
01CS*
71CS*
G1
C
B
A
G2B
G2A
Y7
Y6
Y5
Y4
Y3
Y2
Y1
Y0
CPUACS*
IDLE*
ICF11 74HC02
ICF14 74HC04
ICF10 74HC112
ICF9 74HC139
F1*
CPURDY*
SRIF3B*
ICF13 74HC32
ICF12 74HC00
ICF10 74HC112
PR
J
CK
K
CLR
Q

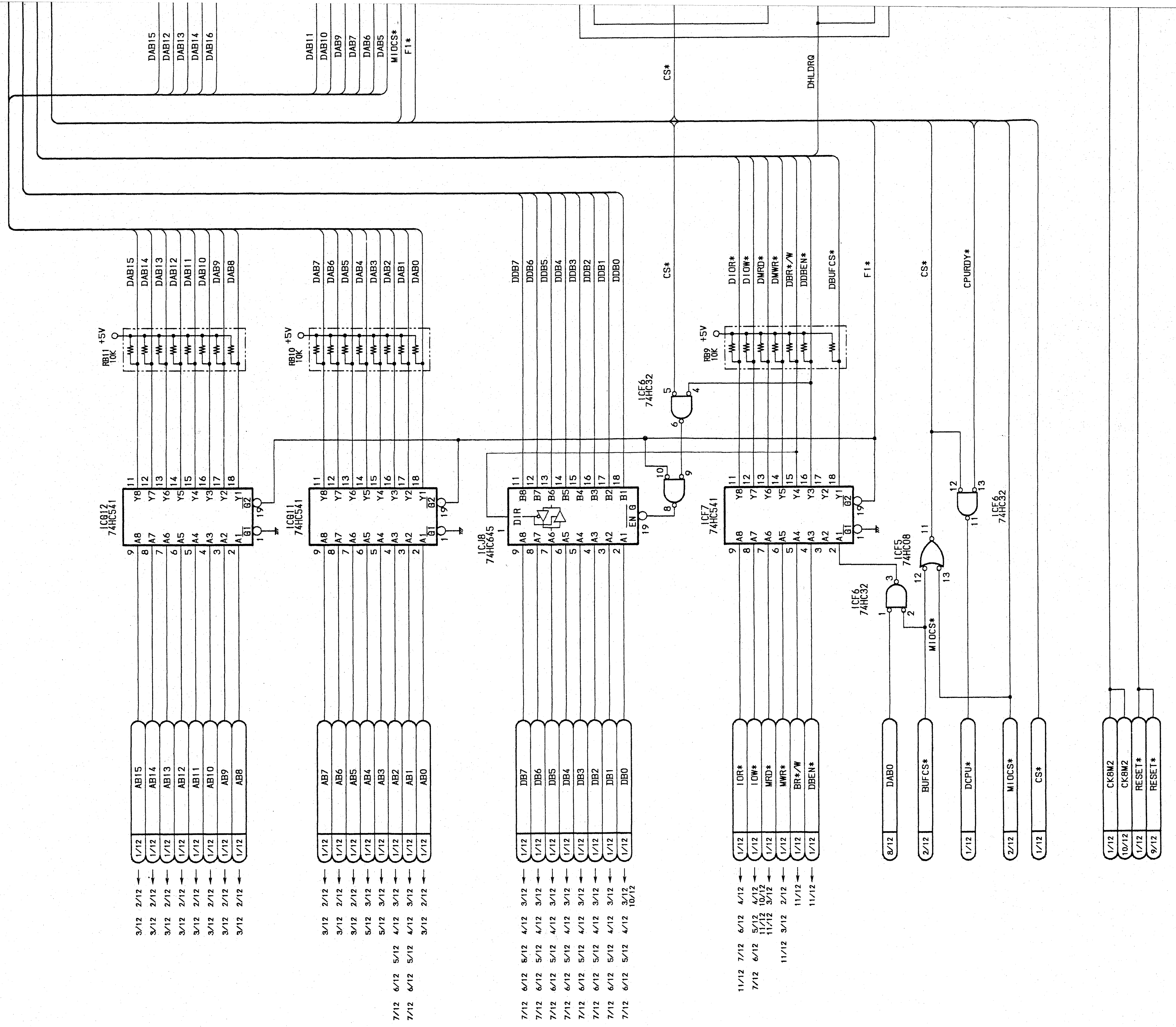
	RF.NO	VCC	GND
74HC27	G13	14	7
74HC125		14	7
74HC138	H14.G14	16	8
74HC00	F11.F12	14	7
74HC112	F10	16	8
74HC139	F4	16	8

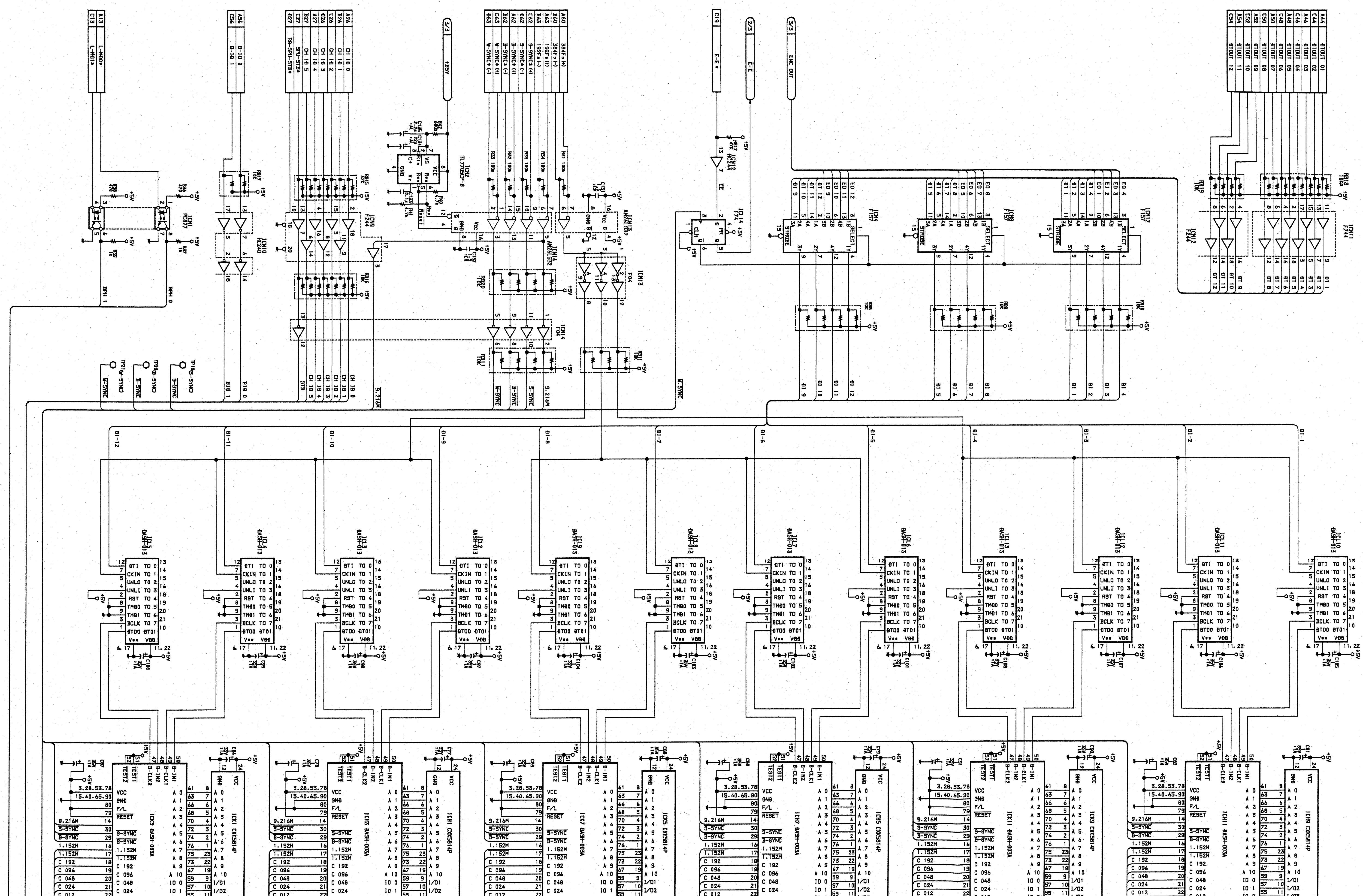
	RF.NO	VCC	GND
74HC04	F14	14	7
74HC05	F13	14	7
74HC08	F5	14	7
74HC32	F6	14	7
74HC541	G12	20	10
74HC541	G11	20	10
74HC541	F7	20	10
74HC541		20	10
74HC645	J8	20	10

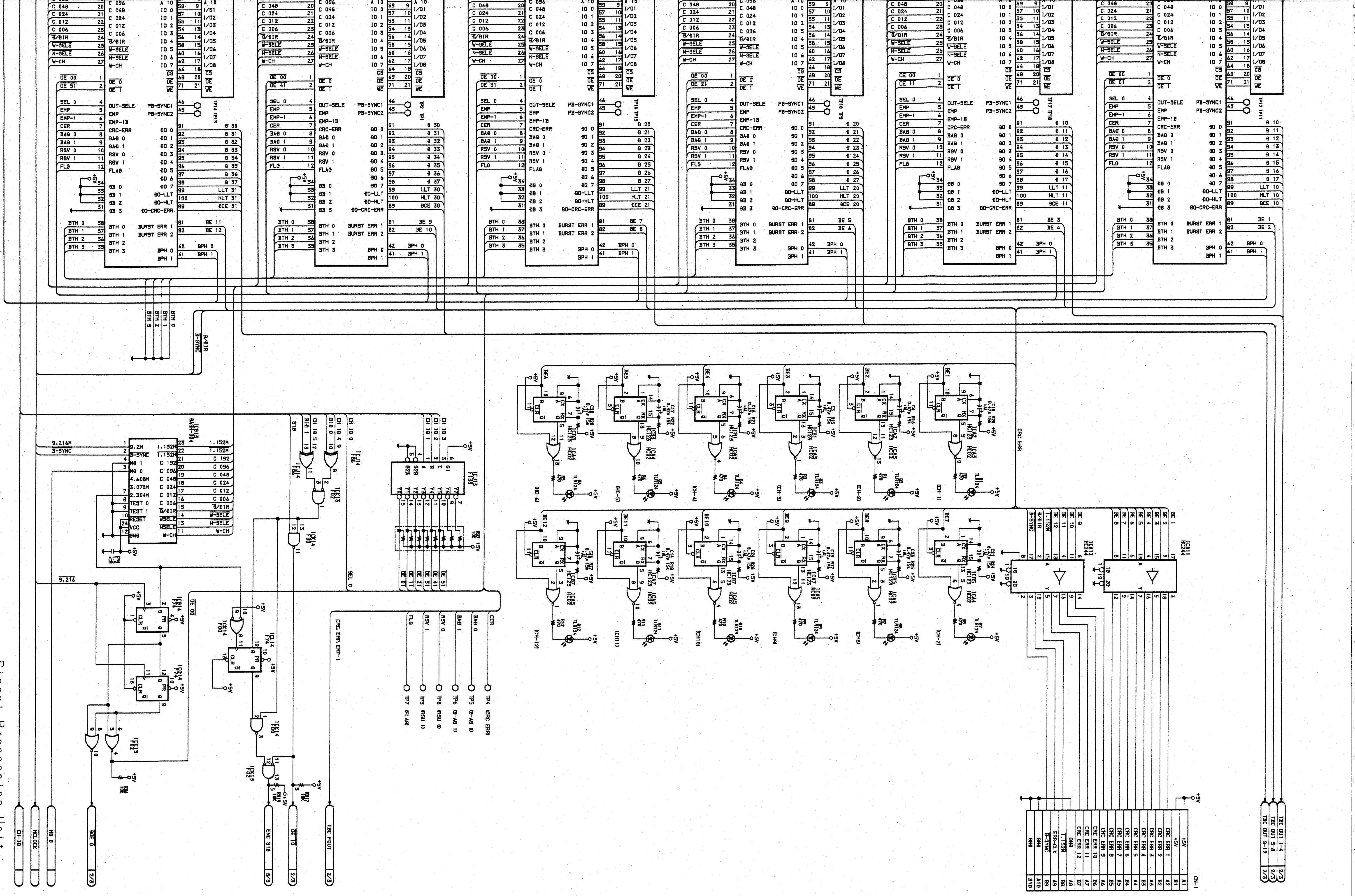
Main CPU

MC-33/33A BOARD (8/12)

BOARD NO.1-627-112-11 & HIGHER
PCM-3348


DAB15
DAB12
DAB13
DAB14
DAB16
DAB11
DAB10
DAB9
DAB7
DAB6
DAB5
MIOCS*
F1*
CS*
DHLDRQ
DAB15
DAB14
DAB13
DAB12
DAB11
DAB10
DAB9
DAB8
DAB7
DAB6
DAB5
DAB4
DAB3
DAB2
DAB1
DAB0
DDB7
DDB6
DDB5
DDB4
DDB3
DDB2
DDB1
DDB0
CS*
DIOR*
DIOW*
DMRD*
DMWR*
DBR*/W
DDBEN*
DBUFCS*
F1*
CS*
CPURDY*
RB11 10K +5V
RB10 10K +5V
RB9 10K +5V
ICF6 74HC32
ICG12 74HC541
ICG11 74HC541
ICJ8 74HC645
ICF7 74HC541
ICF5 74HC08
ICF6 74HC32
ICF6 74HC32
DIR
EN G
MIOCS*
AB15
AB14
AB13
AB12
AB11
AB10
AB9
AB8
AB7
AB6
AB5
AB4
AB3
AB2
AB1
AB0
DB7
DB6
DB5
DB4
DB3
DB2
DB1
DB0
IOR*
IOW*
MRD*
MWR*
BR*/W
DBEN*
DAB0
BUFCS*
DCPU*
MIOCS*
CS*
CK8M2
CK8M2
RESET*
RESET*
1/12
8/12
2/12
10/12
9/12
2/12
3/12
4/12
5/12
6/12
7/12
10/12
11/12

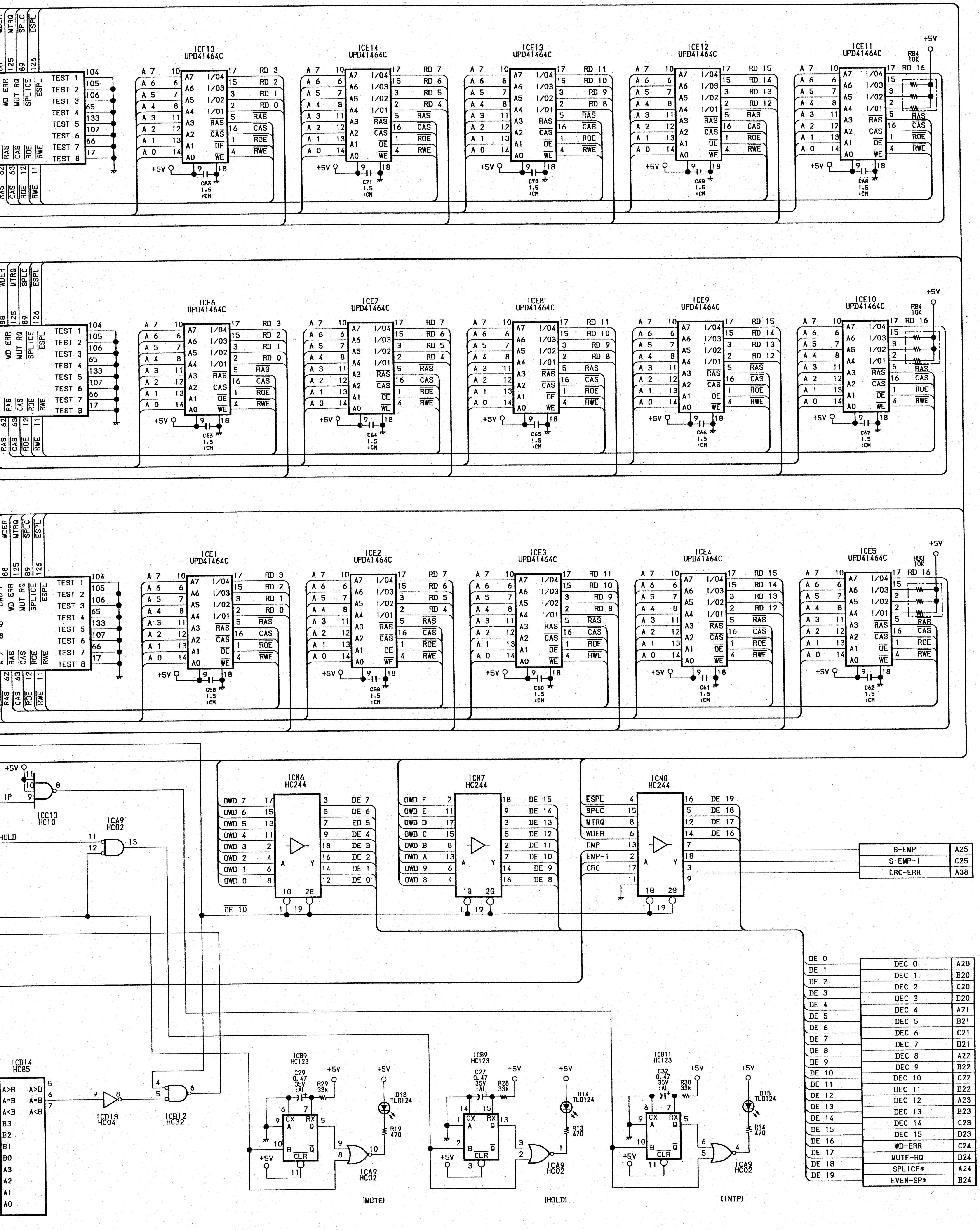

L-MODE
L-MD1*
B-IO 0
B-IO 1
CH IO 0
CH IO 1
CH IO 2
CH IO 3
CH IO 4
CH IO 5
SPU-STB
RO-SPU-STB*
3/3
+B5V
384F(+)
384F(-)
192F(+)
192F(-)
S-SYNC(+)
S-SYNC(-)
B-SYNC(+)
B-SYNC(-)
W-SYNC(+)
W-SYNC(-)
E-E*
2/3
E-E
ENC OUT
BTOUT 01
BTOUT 02
BTOUT 03
BTOUT 04
BTOUT 05
BTOUT 06
BTOUT 07
BTOUT 08
BTOUT 09
BTOUT 10
BTOUT 11
BTOUT 12
ICN1 PC827
ICN10 HC240
ICN9 F244
ICN2 TL7705CP-B
ICN15 AM26LS32
ICN14 AM26LS32
ICN13 F04
ICN4 F04
ICN14 F74
ICN6 F157
ICN8 F157
ICN7 F157
ICN12 F244
ICN11 F244
STROBE
SELECT
+5V
TP21 W-SYNC
TP20 B-SYNC
TP19 S-SYNC
W-SYNC
B-SYNC
S-SYNC
9.216M
BPH 0
BPH 1
BI 1
BI 2
BI 3
BI 4
BI 5
BI 6
BI 7
BI 8
BI 9
BI 10
BI 11
BI 12
BI-1
BI-2
BI-3
BI-4
BI-5
BI-6
BI-7
BI-8
BI-9
BI-10
BI-11
BI-12
IC15 BA5H-013
IC14 BA5H-013
IC13 BA5H-013
IC12 BA5H-013
IC19 BA5H-013
IC18 BA5H-013
IC17 BA5H-013
IC16 BA5H-013
IC113 BA5H-013
IC112 BA5H-013
IC111 BA5H-013
IC110 BA5H-013
BTI
CKIN
UNLO
UNLI
RST
TM00
TM01
BCLK
BTO0
BTO1
Vss
VDD
TO 0
TO 1
TO 2
TO 3
TO 4
TO 5
TO 6
TO 7
ICK3 BA5H-003A
ICK1 CXK5814P
ICK7 BA5H-003A
ICK5 CXK5814P
ICH7 BA5H-003A
ICH5 CXK5814P
ICK11 BA5H-003A
ICK9 CXK5814P
ICH11 BA5H-003A
ICH9 CXK5814P
TEST1
TEST2
B-CLK1
B-CLK2
B-IN1
B-IN2
VCC
GND
F/L
RESET
3.28.53.78
15.40.65.90
1.152M
C 192
C 096
C 048
C 024
C 012
A 0
A 1
A 2
A 3
A 4
A 5
A 6
A 7
A 8
A 9
A 10
IO 0
IO 1
I/O1
I/O2


9.216M
B-SYNC
9.216
CRC ERR
CRC EMP, EMP-1
FLG
RSV 1
RSV 0
BA0 1
BA0 0
CER
TP7 (FLAG)
TP3 (RSV 1)
TP8 (RSV 0)
TP6 (B-A0 1)
TP5 (B-A0 0)
TP4 (CRC ERR)
CH-10
MCLOCK
MB 0
8OE 0
ENC STB
OE 10
TBC FOUT
TBC OUT 1-4
TBC OUT 5-8
TBC OUT 9-12
CN-1

Signal Processing Unit

SPU-1 BOARD (1/3)

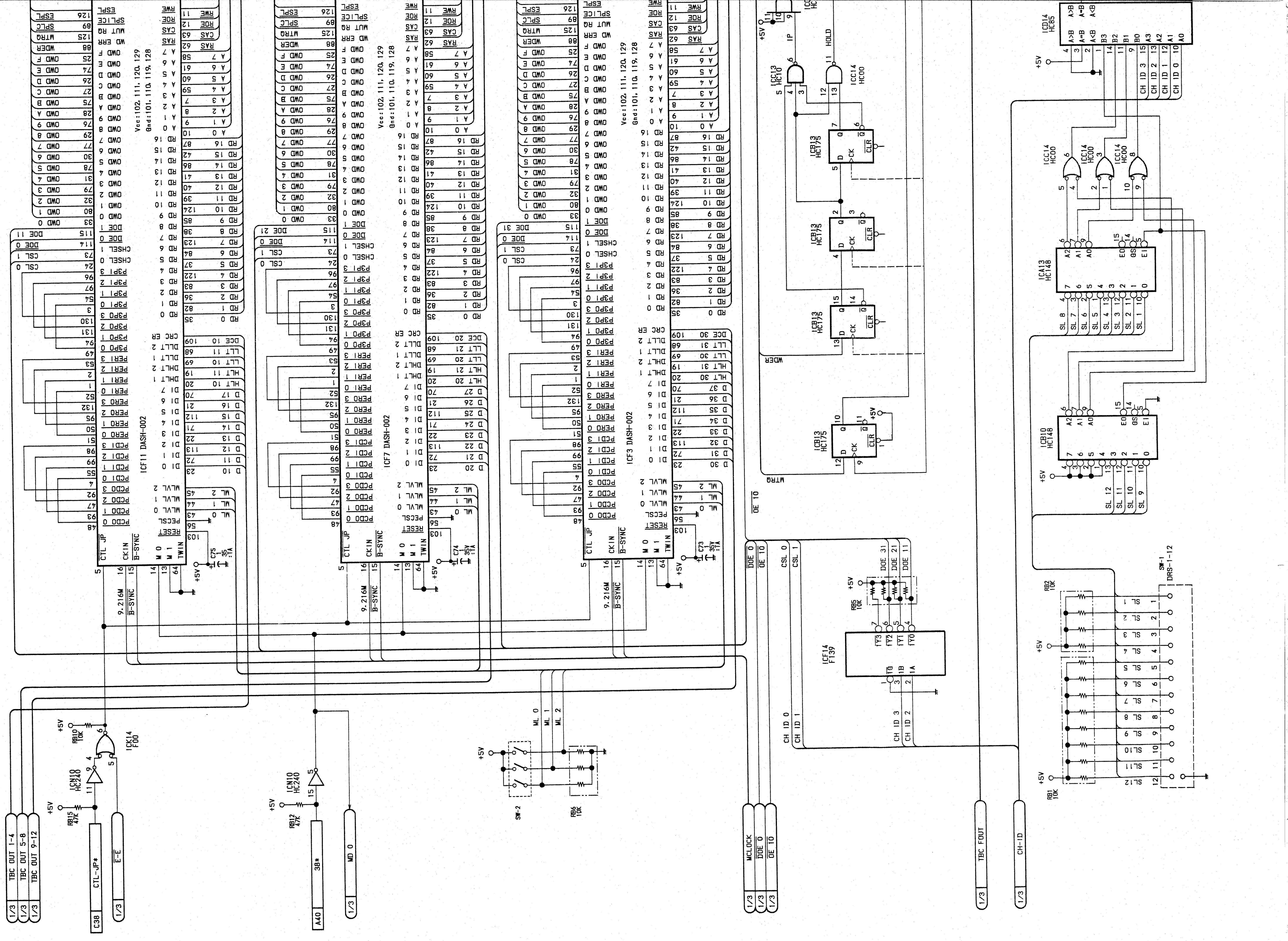
BOARD NO.1-627-109-11 & HIGHER
PCM-3348

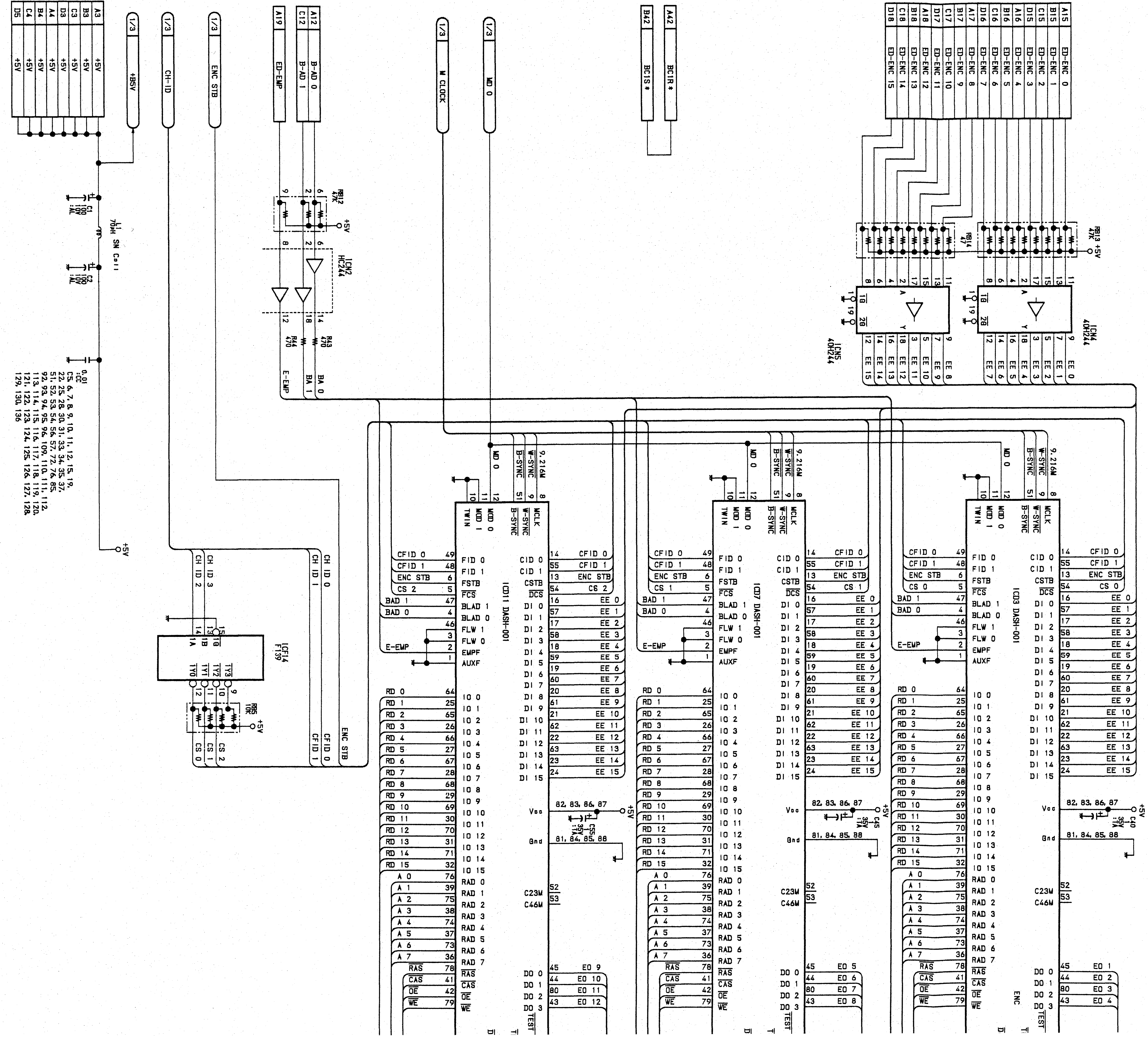

ICF13 UPD41464C
ICE14 UPD41464C
ICE13 UPD41464C
ICE12 UPD41464C
ICE11 UPD41464C
ICE6 UPD41464C
ICE7 UPD41464C
ICE8 UPD41464C
ICE9 UPD41464C
ICE10 UPD41464C
ICE1 UPD41464C
ICE2 UPD41464C
ICE3 UPD41464C
ICE4 UPD41464C
ICE5 UPD41464C
RB4 10K
RB3 10K
+5V
A 7
A 6
A 5
A 4
A 3
A 2
A 1
A 0
RD 0
RD 1
RD 2
RD 3
RD 4
RD 5
RD 6
RD 7
RD 8
RD 9
RD 10
RD 11
RD 12
RD 13
RD 14
RD 15
RD 16
RAS
CAS
ROE
RWE
TEST 1
TEST 2
TEST 3
TEST 4
TEST 5
TEST 6
TEST 7
TEST 8
WD ERR
MUT RQ
SPLICE
ESPL
WDER
MTRQ
SPLC
C58 1.5 :CM
C59 1.5 :CM
C60 1.5 :CM
C61 1.5 :CM
C62 1.5 :CM
C63 1.5 :CM
C64 1.5 :CM
C65 1.5 :CM
C66 1.5 :CM
C67 1.5 :CM
C68 1.5 :CM
C69 1.5 :CM
C70 1.5 :CM
C71 1.5 :CM
C83 1.5 :CM
ICN6 HC244
ICN7 HC244
ICN8 HC244
OWD 0
OWD 1
OWD 2
OWD 3
OWD 4
OWD 5
OWD 6
OWD 7
OWD 8
OWD 9
OWD A
OWD B
OWD C
OWD D
OWD E
OWD F
DE 0
DE 1
DE 2
DE 3
DE 4
ED 5
DE 6
DE 7
DE 8
DE 9
DE 10
DE 11
DE 12
DE 13
DE 14
DE 15
DE 16
DE 17
DE 18
DE 19
OE 10
EMP
EMP-1
CRC
S-EMP A25
S-EMP-1 C25
CRC-ERR A38
DEC 0 A20
DEC 1 B20
DEC 2 C20
DEC 3 D20
DEC 4 A21
DEC 5 B21
DEC 6 C21
DEC 7 D21
DEC 8 A22
DEC 9 B22
DEC 10 C22
DEC 11 D22
DEC 12 A23
DEC 13 B23
DEC 14 C23
DEC 15 D23
WD-ERR C24
MUTE-RQ D24
SPLICE* A24
EVEN-SP* B24
ICC13 HC10
IP
HOLD
ICA9 HC02
ICD14 HC85
A>B
A=B
A<B
B3
B2
B1
B0
A3
A2
A1
A0
ICD13 HC04
ICB12 HC32
ICB9 HC123
ICB11 HC123
C29 0.47 35V :AL
C27 0.47 35V :AL
C32 0.47 35V :AL
R29 33k
R28 33k
R30 33k
D13 TLR124
D14 TL0124
D15 TL0124
R19 470
R13 470
R14 470
CX
RX
CLR
[MUTE]
[HOLD]
[INTP]

Signal Processing Unit

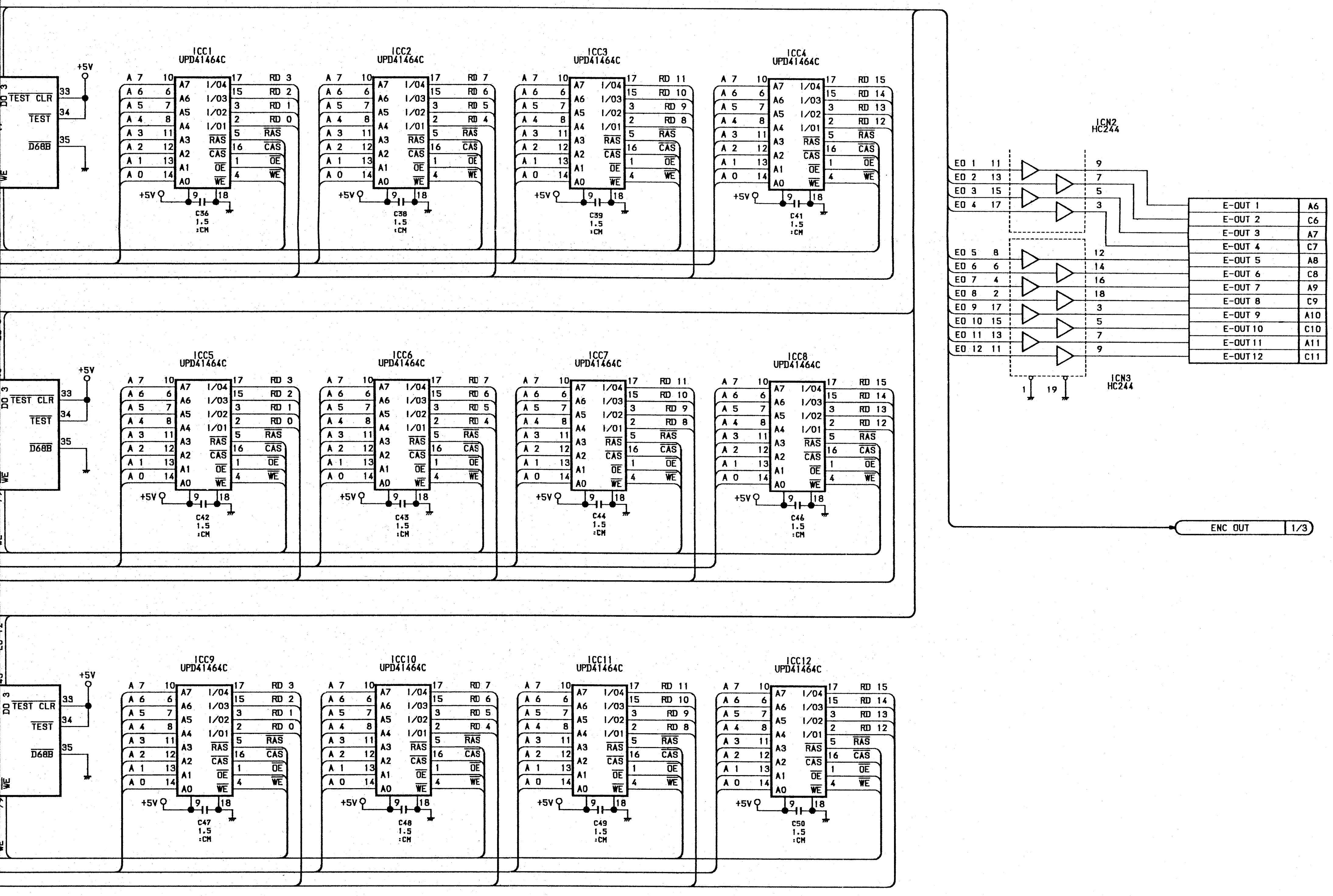
SPU-1 BOARD (2/3)

BOARD NO.1-627-109-11 & HIGHER
PCM-3348


ICF11 DASH-002
ICF7 DASH-002
ICF3 DASH-002
Vcc:102, 111, 120, 129
Gnd:101, 110, 119, 128
9.216M
B-SYNC
ICB13 HC175
ICC13 HC10
ICC14 HC00
ICA13 HC148
ICB10 HC148
ICD14 HC85
ICF14 F139
ICK14 F00
ICN10 HC240
HOLD
WDER
MTRQ
CH ID 0
CH ID 1
CH ID 2
CH ID 3
SW-1 DRS-1-12
SW-2
SL 1
SL 2
SL 3
SL 4
SL 5
SL 6
SL 7
SL 8
SL 9
SL 10
SL 11
SL 12
ML 0
ML 1
ML 2
DOE 0
DOE 10
DOE 11
DOE 21
DOE 31
OE 10
CSL 0
CSL 1
RB1 10K
RB2 10K
RB5 10K
RB6 10K
RB10 10K
RB12 47K
RB15 47K
+5V
TBC OUT 1-4
TBC OUT 5-8
TBC OUT 9-12
CTL-JP*
C38
E-E
3B*
A40
MD 0
MCLOCK
DOE 0
OE 10
TBC FOUT
CH-ID
1/3



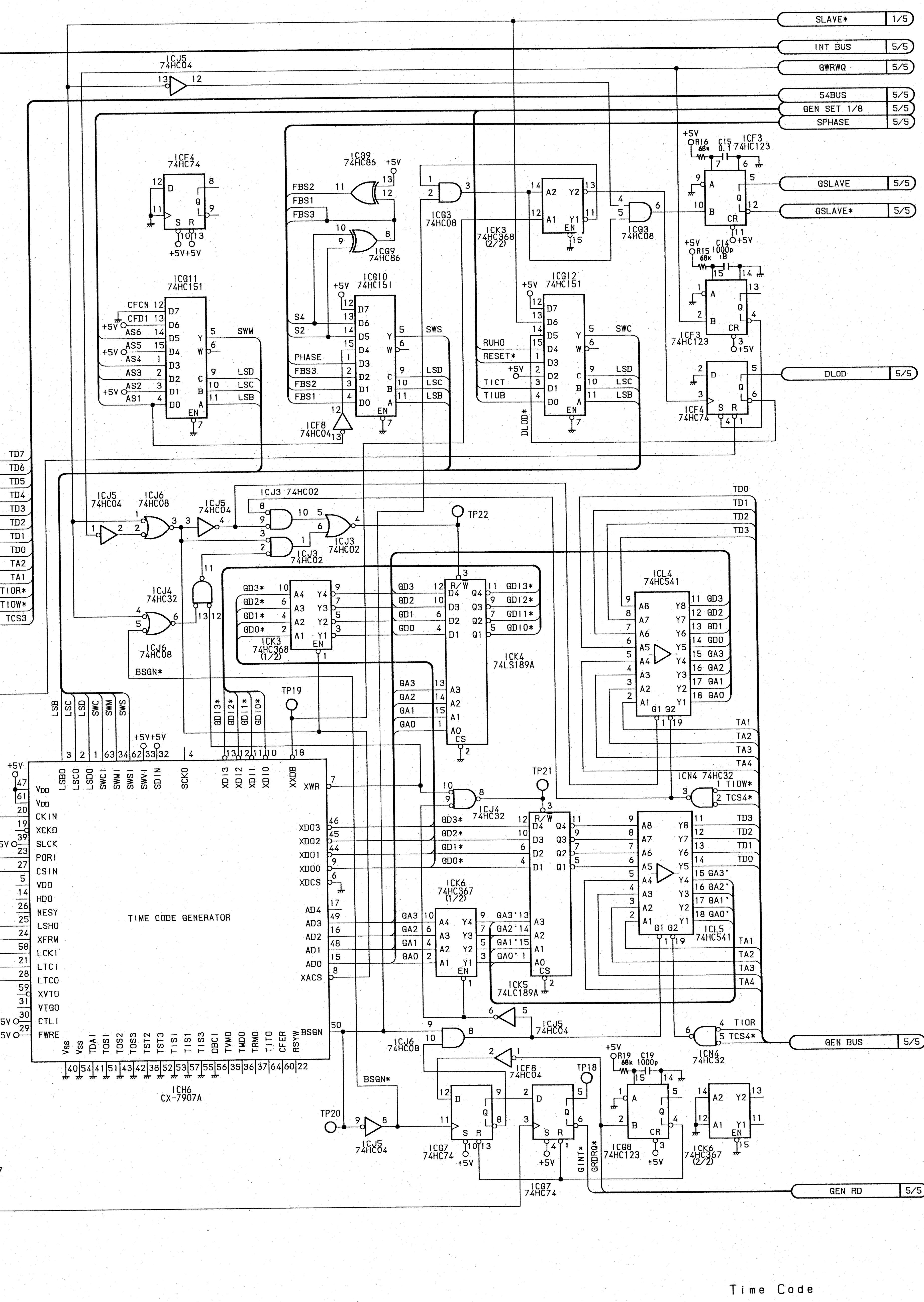
A3 B3 C3 D3 A4 B4 C4 D5
+5V
+B5V
CH-ID
ENC STB
ED-EMP
B-AD 0
B-AD 1
A19 A12 C12
W CLOCK
MD 0
BCIS*
BCIR*
B42 A42
ED-ENC 0 … ED-ENC 15
A15 B15 C15 D15 A16 B16 C16 D16 A17 B17 C17 D17 A18 B18 C18 D18
C1 100 16V
L1 70uH SN Coil
C2 100 16V
0.01 C5, 6, 7, 8, 9, 10, 11, 12, 15, 19, 22, 25, 28, 30, 31, 33, 34, 35, 37, 51, 52, 53, 54, 56, 57, 72, 76, 85, 92, 93, 94, 95, 96, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 136
RB12 47K
ICN2 HC244
R43 470
R44 470
BA 0
BA 1
E-EMP
RB13 47K
RB14 47K
ICN4 40H244
ICN5 40H244
EE 0 … EE 15
ICF14 F139
RB5 10K
CH ID 0
CH ID 1
CH ID 2
CH ID 3
CS 0
CS 1
CS 2
CFID 0
CFID 1
ICD11 DASH-001
ICD7 DASH-001
ICD3 DASH-001
MD 0
B-SYNC
W-SYNC
9.216M
TWIN
MOD 1
MOD 0
MCLK
FID 0
FID 1
FSTB
FCS
BLAD 1
BLAD 0
FLW 1
FLW 0
EMPF
AUXF
CID 0
CID 1
CSTB
DCS
DI 0 … DI 15
BAD 1
BAD 0
RD 0 … RD 15
IO 0 … IO 15
A 0 … A 7
RAD 0 … RAD 7
RAS
CAS
OE
WE
Vcc
Gnd
82, 83, 86, 87
81, 84, 85, 88
C55
C45
C40
35V 1A
C23M
C46M
DO 0
DO 1
DO 2
DO 3
EO 9
EO 10
EO 11
EO 12
EO 5
EO 6
EO 7
EO 8
EO 1
EO 2
EO 3
EO 4
ENC
TEST


ICC1 UPD41464C
ICC2 UPD41464C
ICC3 UPD41464C
ICC4 UPD41464C
ICC5 UPD41464C
ICC6 UPD41464C
ICC7 UPD41464C
ICC8 UPD41464C
ICC9 UPD41464C
ICC10 UPD41464C
ICC11 UPD41464C
ICC12 UPD41464C
A7 A6 A5 A4 A3 A2 A1 A0
I/O4 I/O3 I/O2 I/O1
RAS CAS OE WE
RD 0 RD 1 RD 2 RD 3 RD 4 RD 5 RD 6 RD 7 RD 8 RD 9 RD 10 RD 11 RD 12 RD 13 RD 14 RD 15
+5V
C36 1.5 :CM
C38 1.5 :CM
C39 1.5 :CM
C41 1.5 :CM
C42 1.5 :CM
C43 1.5 :CM
C44 1.5 :CM
C46 1.5 :CM
C47 1.5 :CM
C48 1.5 :CM
C49 1.5 :CM
C50 1.5 :CM
DO 3
TEST CLR
TEST
D68B
WE
ICN2 HC244
ICN3 HC244
EO 1 EO 2 EO 3 EO 4 EO 5 EO 6 EO 7 EO 8 EO 9 EO 10 EO 11 EO 12
E-OUT 1 A6
E-OUT 2 C6
E-OUT 3 A7
E-OUT 4 C7
E-OUT 5 A8
E-OUT 6 C8
E-OUT 7 A9
E-OUT 8 C9
E-OUT 9 A10
E-OUT10 C10
E-OUT11 A11
E-OUT12 C11
ENC OUT
1/3

Signal Processing Unit

SPU-1 BOARD (3/3)

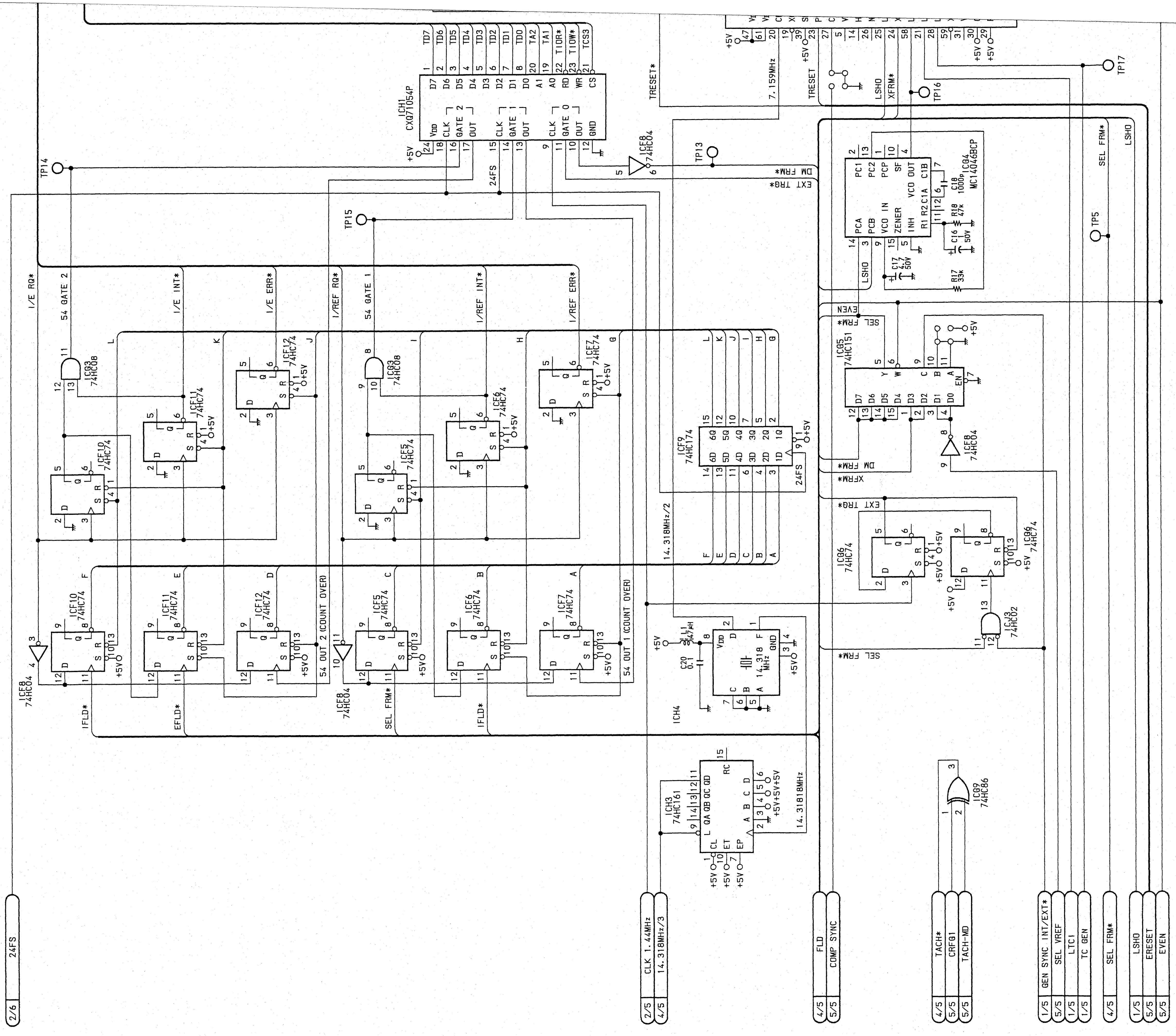
BOARD NO.1-627-109-11 & HIGHER
PCM-3348

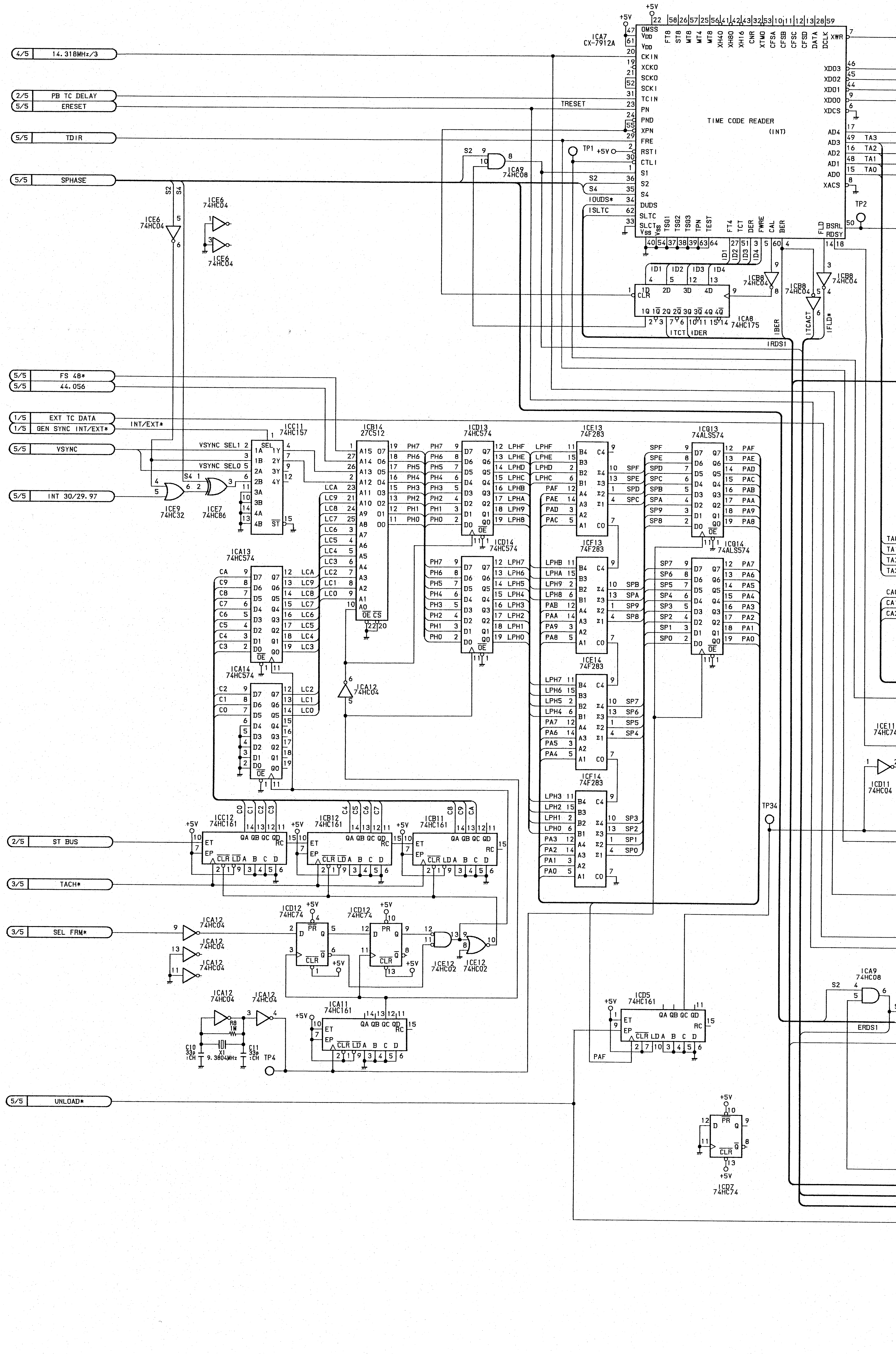

SLAVE* 1/5
INT BUS 5/5
GWRWQ 5/5
54BUS 5/5
GEN SET 1/8 5/5
SPHASE 5/5
GSLAVE 5/5
GSLAVE* 5/5
DLOD 5/5
GEN BUS 5/5
GEN RD 5/5
ICF3 74HC123
ICF4 74HC74
ICG3 74HC08
ICG9 74HC86
ICG10 74HC151
ICG11 74HC151
ICG12 74HC151
ICK3 74HC368
ICF8 74HC04
ICJ3 74HC02
ICJ4 74HC32
ICJ5 74HC04
ICJ6 74HC08
ICK4 74LS189A
ICK5 74LC189A
ICK6 74HC367
ICL4 74HC541
ICL5 74HC541
ICN4 74HC32
ICG7 74HC74
ICG8 74HC123
ICH6 CX-7907A
TIME CODE GENERATOR
TP18
TP19
TP20
TP21
TP22
TD0 TD1 TD2 TD3 TD4 TD5 TD6 TD7
TA1 TA2 TA3 TA4
TIOR* TIOW* TCS3 TCS4*
BSGN*
LSB LSC LSD SWC SWM SWS
GINT*
GRDRQ*
DLOD*
+5V

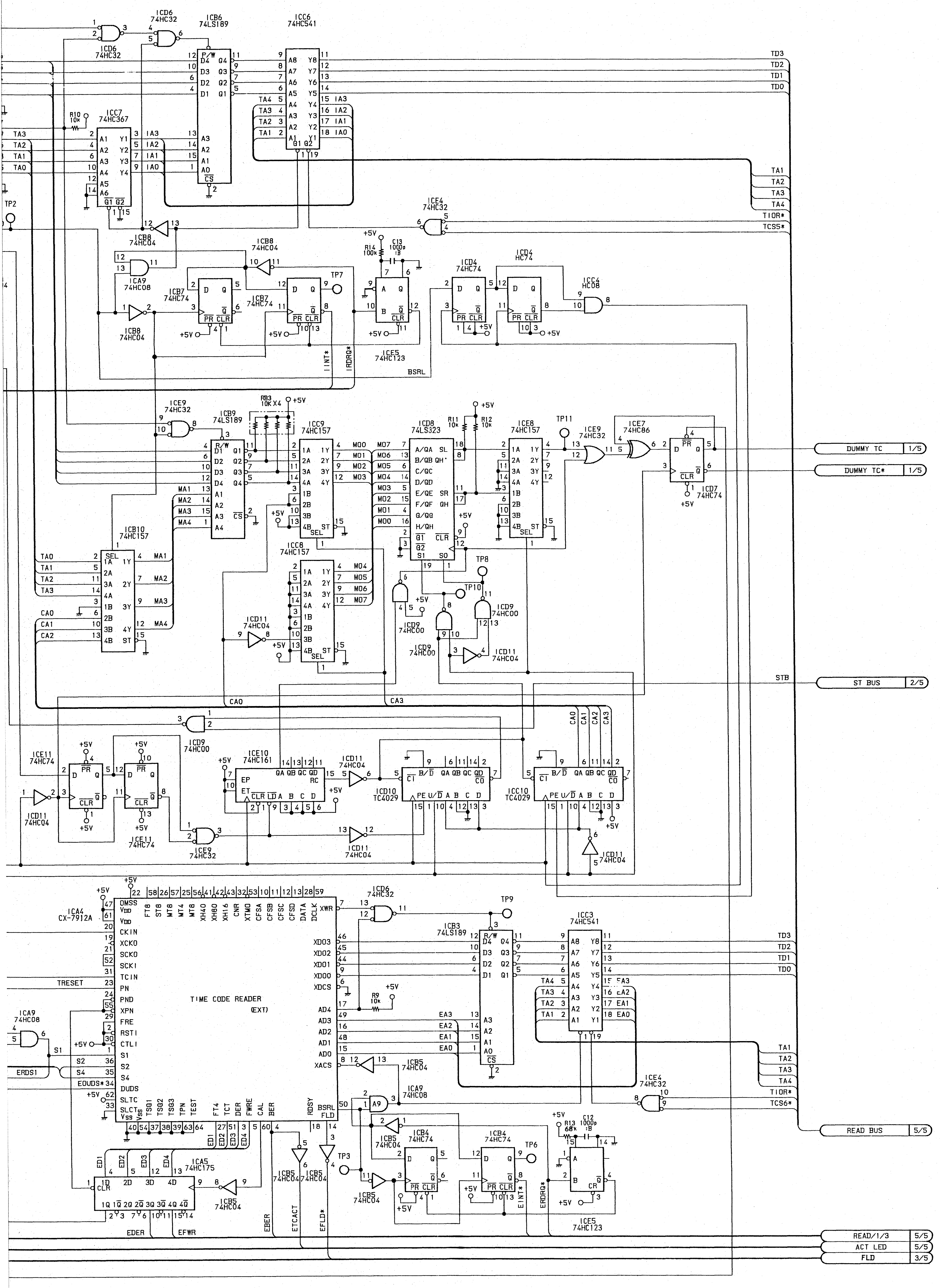
Time Code

TC-50 BOARD (3/5)

BOARD NO.1-627-114-11 & HIGHER
PCM-3348


ICH1 CXQ71054P
TD7 TD6 TD5 TD4 TD3 TD2 TD1 TD0 TA2 TA1 TIOR* TIOW* TCS3
TP14
TP13
TP15
TP16
TP17
TP5
ICF8 74HC04
DM FRM*
EXT TRG*
24FS
TRESET*
TRESET
7.159MHz
LSHO
XFRM*
ICQ4 MC14046BCP
C18 1000p
R18 47k
C16 1 50V
C17 4.7 50V
R17 33k
SEL FRM*
EVEN
I/E RQ*
54 GATE 2
I/E INT*
I/E ERR*
I/REF RQ*
54 GATE 1
I/REF INT*
I/REF ERR*
ICQ3 74HC08
ICF10 74HC74
ICF11 74HC74
ICF12 74HC74
ICF5 74HC74
ICF6 74HC74
ICF7 74HC74
ICF9 74HC174
ICQ5 74HC151
ICQ6 74HC74
ICJ3 74HC02
54 OUT 2 (COUNT OVER)
54 OUT 1 (COUNT OVER)
14.318MHz/2
ICH4
L1 47μH
C20 0.1
14.318 MHz
IFLD*
EFLD*
SEL FRM*
IFLD*
ICH3 74HC161
14.31818MHz
ICQ9 74HC86
24FS 2/6
CLK 1.44MHz 2/5
14.318MHz/3 4/5
FLD 4/5
COMP SYNC 5/5
TACH* 4/5
CRFG1 5/5
TACH-MD 5/5
GEN SYNC INT/EXT* 1/5
SEL VREF 5/5
LTC1 1/5
TC GEN 1/5
SEL FRM* 4/5
LSHO 1/5
ERESET 5/5
EVEN 5/5

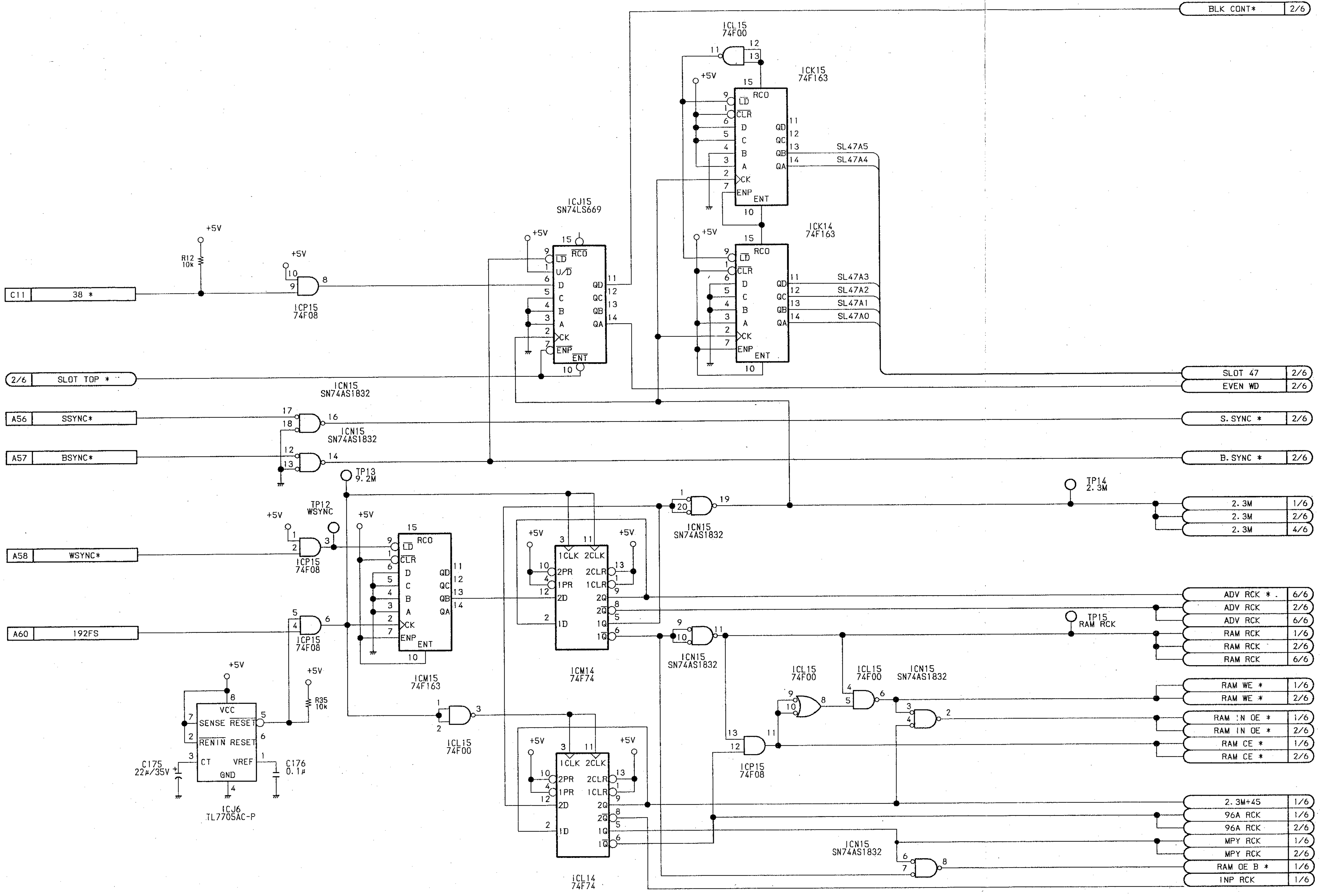

4/5 14.318MHz/3
2/5 PB TC DELAY
5/5 ERESET
5/5 TDIR
5/5 SPHASE
5/5 FS 48*
5/5 44.056
1/5 EXT TC DATA
1/5 GEN SYNC INT/EXT*
5/5 VSYNC
5/5 INT 30/29.97
2/5 ST BUS
3/5 TACH*
3/5 SEL FRM*
5/5 UNLOAD*
INT/EXT*
TRESET
ICA7 CX-7912A
TIME CODE READER (INT)
OMSS
VDD
CKIN
XCKO
SCKO
SCKI
TCIN
PN
PND
XPN
FRE
RSTI
CTLI
S1
S2
S4
DUDS
SLTC
VSS
FT8
ST8
MT8
MT4
XH40
XH80
XH16
CNR
XTMO
CFSA
CFSB
CFSC
CFSD
DATA
DCLK
XWR
XDO3
XDO2
XDO1
XDO0
XDCS
AD4
AD3
AD2
AD1
AD0
XACS
TSG1
TSG2
TSG3
TPN
TEST
FT4
TCT
DER
FWRE
CAL
BER
FLD
BSRL
RDSY
TA3
TA2
TA1
TA0
TP1
TP2
TP4
TP34
+5V
IOUDS*
ISLTC
ICA9 74HC08
ICE6 74HC04
ICE9 74HC32
ICE7 74HC86
ICC11 74HC157
SEL
VSYNC SEL1
VSYNC SEL0
ICB14 27C512
ICD13 74HC574
ICD14 74HC574
ICE13 74F283
ICF13 74F283
ICE14 74F283
ICF14 74F283
ICG13 74ALS574
ICG14 74ALS574
ICA13 74HC574
ICA14 74HC574
ICA12 74HC04
ICC12 74HC161
ICB12 74HC161
ICB11 74HC161
ICA11 74HC161
ICD12 74HC74
ICE12 74HC02
ICD5 74HC161
ICD7 74HC74
ICA8 74HC175
ICB8 74HC04
ICD11 74HC04
ICE11 74HC74
ID1
ID2
ID3
ID4
ITCT
IDER
IBER
IRDS1
ITCACT
IFLD*
ERDS1
PAF
R8 1M
X1 9.3804MHz
C10 33p :CH
C11 33p :CH
PH0
PH1
PH2
PH3
PH4
PH5
PH6
PH7
LPH0
LPH1
LPH2
LPH3
LPH4
LPH5
LPH6
LPH7
LPH8
LPH9
LPHA
LPHB
LPHC
LPHD
LPHE
LPHF
SP0
SP1
SP2
SP3
SP4
SP5
SP6
SP7
SP8
SP9
SPA
SPB
SPC
SPD
SPE
SPF
PA0
PA1
PA2
PA3
PA4
PA5
PA6
PA7
PA8
PA9
PAA
PAB
PAC
PAD
PAE
PAF
C0
C1
C2
C3
C4
C5
C6
C7
C8
C9
CA
LC0
LC1
LC2
LC3
LC4
LC5
LC6
LC7
LC8
LC9
LCA


ICD6 74HC32
ICB6 74LS189
ICC6 74HC541
ICC7 74HC367
R10 10k
TD3
TD2
TD1
TD0
TA0
TA1
TA2
TA3
TA4
IA0
IA1
IA2
IA3
TIOR*
TCS5*
TP2
ICE4 74HC32
ICB8 74HC04
ICA9 74HC08
ICB7 74HC74
TP7
R14 100k
C13 1000p
ICE5 74HC123
ICD4 74HC74
ICD4 HC74
ICC4 HC08
IINT*
IRDRQ*
BSRL
ICE9 74HC32
ICB9 74LS189
RB3 10K X4
ICC9 74HC157
ICD8 74LS323
R11 10k
R12 10k
ICE8 74HC157
TP11
ICE7 74HC86
ICD7 74HC74
DUMMY TC
1/5
DUMMY TC*
1/5
MA1
MA2
MA3
MA4
MO0
MO1
MO2
MO3
MO4
MO5
MO6
MO7
ICB10 74HC157
CA0
CA1
CA2
CA3
ICC8 74HC157
ICD11 74HC04
ICD9 74HC00
TP8
TP10
STB
ST BUS
2/5
ICE11 74HC74
ICE10 74HC161
ICD10 TC4029
ICC10 TC4029
+5V
ICA4 CX-7912A
TIME CODE READER
(EXT)
TRESET
ERDS1
S1
S2
S4
EDUDS*
ICA9 74HC08
R9 10k
ICB3 74LS189
ICC3 74HC541
EA0
EA1
EA2
EA3
TCS6*
TP9
ICB5 74HC04
ICB4 74HC74
TP3
TP6
EINT*
ERDRQ*
R13 68k
C12 1000p
ICA5 74HC175
ED1
ED2
ED3
ED4
EDER
EFWR
EBER
ETCACT
EFLD*
READ BUS
5/5
READ/1/3
5/5
ACT LED
5/5
FLD
3/5

Time Code

TC-50 BOARD (4/5)

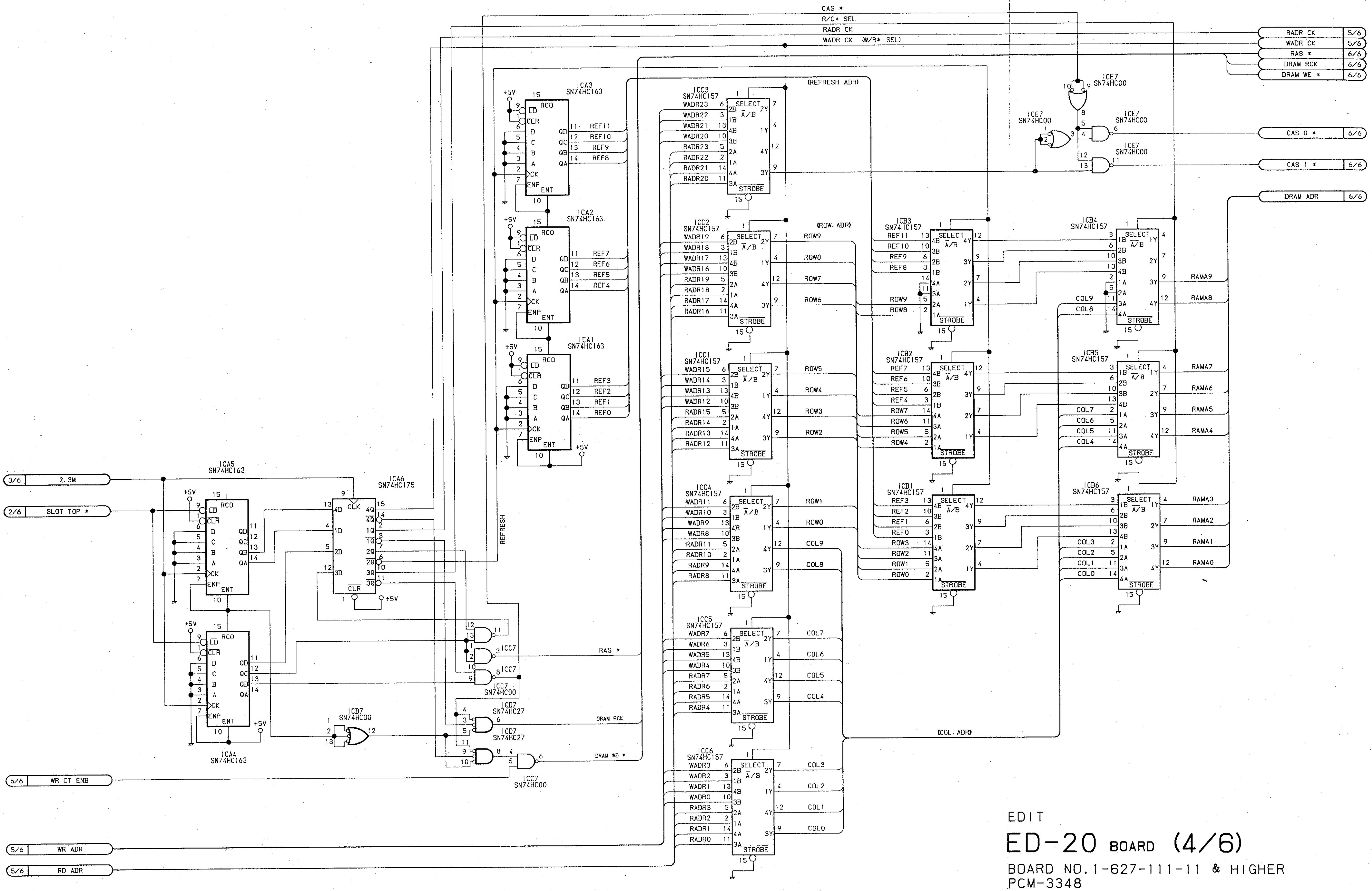
BOARD NO.1-627-114-11 & HIGHER
PCM-3348


BLK CONT* 2/6
ICL15 74F00
ICK15 74F163
ICK14 74F163
SL47A5
SL47A4
SL47A3
SL47A2
SL47A1
SL47A0
ICJ15 SN74LS669
+5V
R12 10k
C11 38 *
ICP15 74F08
2/6 SLOT TOP *
ICN15 SN74AS1832
A56 SSYNC*
A57 BSYNC*
SLOT 47 2/6
EVEN WD 2/6
S. SYNC * 2/6
B. SYNC * 2/6
TP13 9.2M
TP12 WSYNC
TP14 2.3M
2.3M 1/6
2.3M 2/6
2.3M 4/6
A58 WSYNC*
A60 192FS
ICM15 74F163
ICM14 74F74
ICL14 74F74
ADV RCK * 6/6
ADV RCK 2/6
ADV RCK 6/6
TP15 RAM RCK
RAM RCK 1/6
RAM RCK 2/6
RAM RCK 6/6
RAM WE * 1/6
RAM WE * 2/6
RAM IN OE * 1/6
RAM IN OE * 2/6
RAM CE * 1/6
RAM CE * 2/6
2.3M+45 1/6
96A RCK 1/6
96A RCK 2/6
MPY RCK 1/6
MPY RCK 2/6
RAM OE B * 1/6
INP RCK 1/6
ICJ6 TL7705AC-P
C175 22μ/35V
C176 0.1μ
R35 10k

EDIT

ED-20 BOARD (3/6)

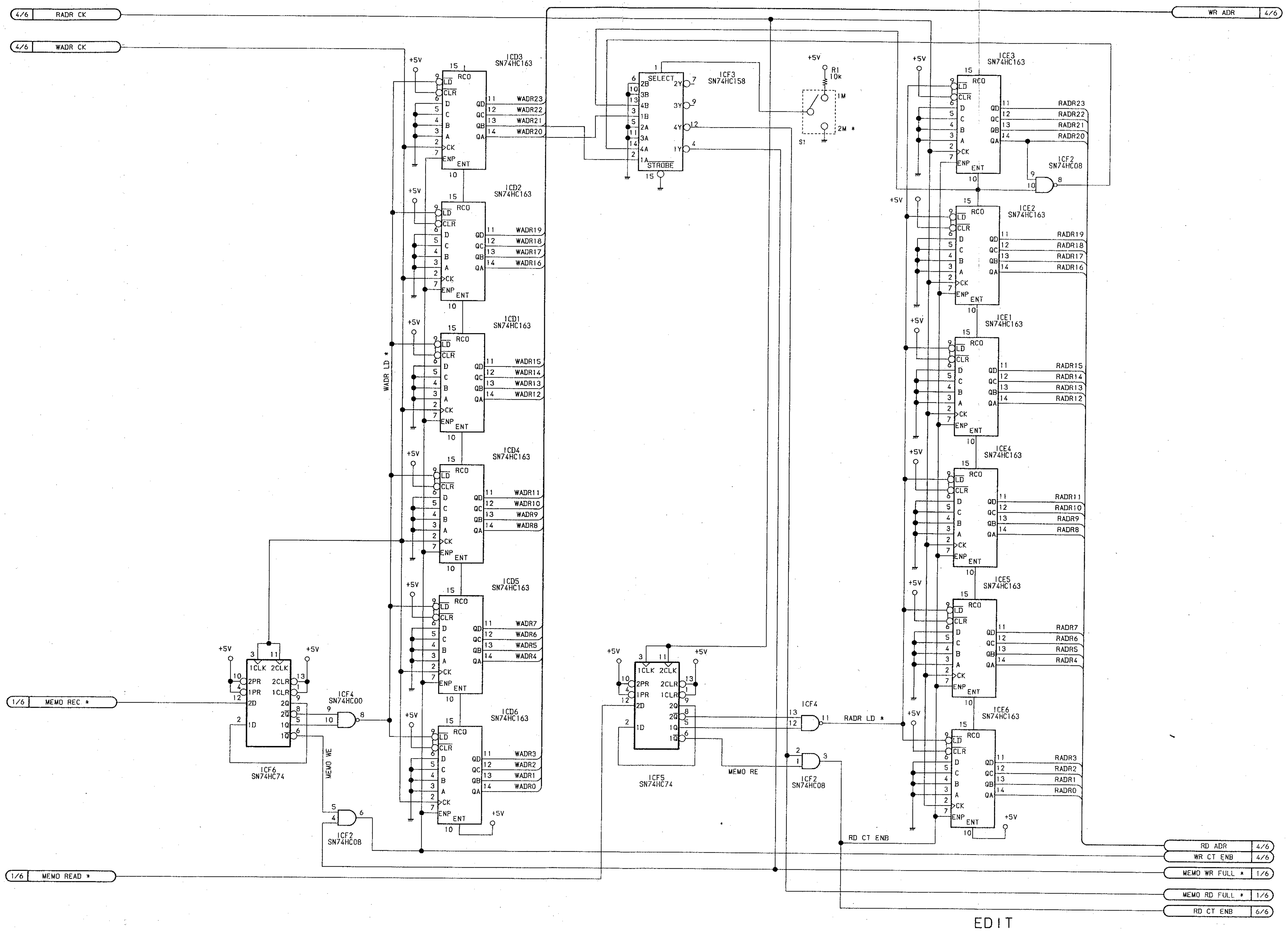
BOARD NO. 1-627-111-11 & HIGHER
PCM-3348


CAS *
R/C* SEL
RADR CK
WADR CK (W/R* SEL)
RADR CK 5/6
WADR CK 5/6
RAS * 6/6
DRAM RCK 6/6
DRAM WE * 6/6
CAS 0 * 6/6
CAS 1 * 6/6
DRAM ADR 6/6
(REFRESH ADR)
(ROW. ADR)
(COL. ADR)
ICA3 SN74HC163
ICA2 SN74HC163
ICA1 SN74HC163
ICA5 SN74HC163
ICA4 SN74HC163
ICA6 SN74HC175
ICC3 SN74HC157
ICC2 SN74HC157
ICC1 SN74HC157
ICC4 SN74HC157
ICC5 SN74HC157
ICC6 SN74HC157
ICB3 SN74HC157
ICB2 SN74HC157
ICB1 SN74HC157
ICB4 SN74HC157
ICB5 SN74HC157
ICB6 SN74HC157
ICE7 SN74HC00
ICC7 SN74HC00
ICD7 SN74HC00
ICD7 SN74HC27
REFRESH
RAS *
DRAM RCK
DRAM WE *
3/6 2.3M
2/6 SLOT TOP *
5/6 WR CT ENB
5/6 WR ADR
5/6 RD ADR
+5V
RAMA9
RAMA8
RAMA7
RAMA6
RAMA5
RAMA4
RAMA3
RAMA2
RAMA1
RAMA0

EDIT

ED-20 BOARD (4/6)

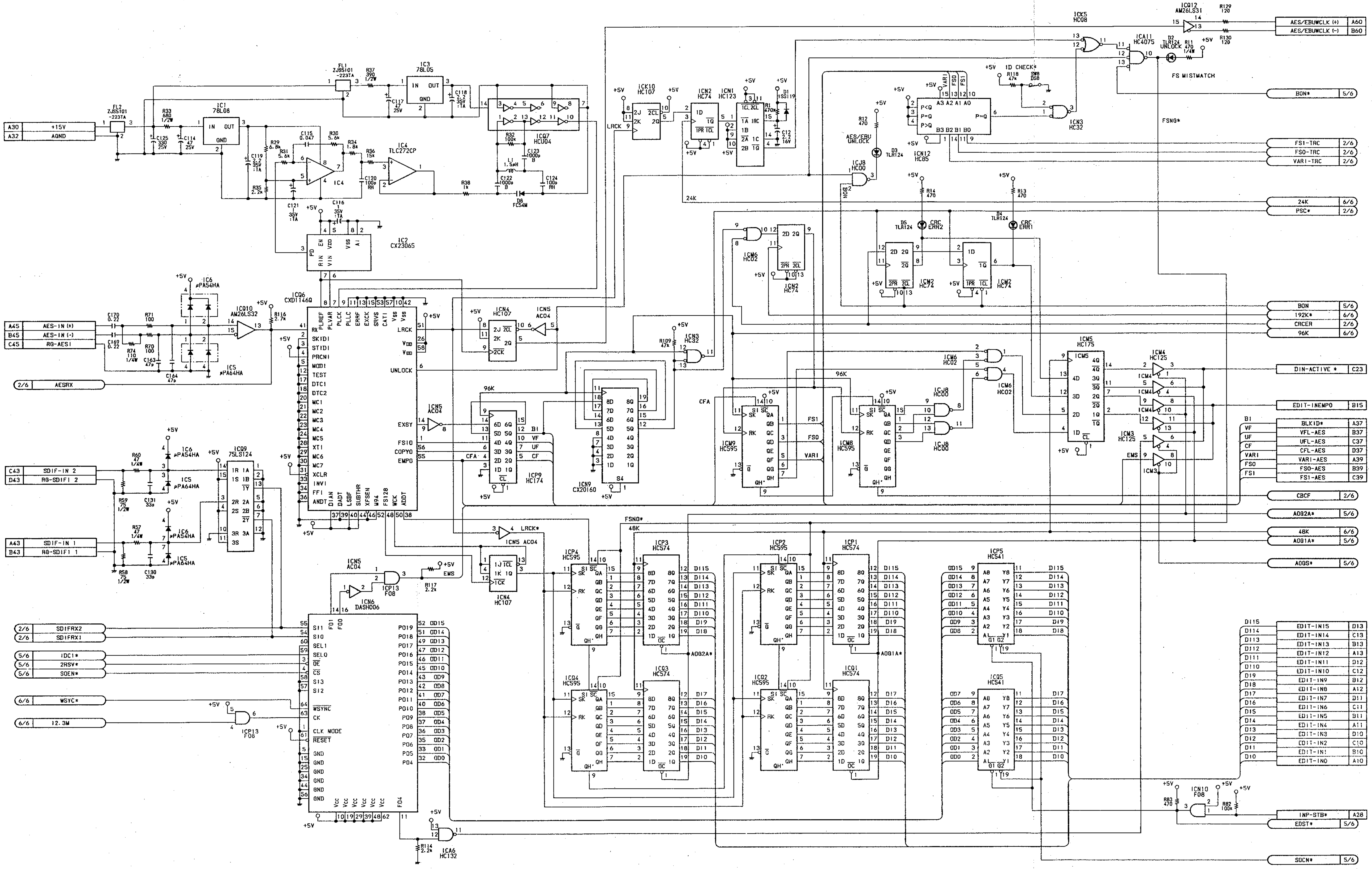
BOARD NO.1-627-111-11 & HIGHER
PCM-3348


4/6 RADR CK
4/6 WADR CK
WR ADR 4/6
ICD3 SN74HC163
ICD2 SN74HC163
ICD1 SN74HC163
ICD4 SN74HC163
ICD5 SN74HC163
ICD6 SN74HC163
ICE3 SN74HC163
ICE2 SN74HC163
ICE1 SN74HC163
ICE4 SN74HC163
ICE5 SN74HC163
ICE6 SN74HC163
ICF3 SN74HC158
SELECT
STROBE
R1 10k
1M
2M *
S1
ICF2 SN74HC08
ICF4 SN74HC00
ICF6 SN74HC74
ICF5 SN74HC74
+5V
RCO
LD
CLR
ENP
ENT
CK
WADR LD *
WADR23
WADR22
WADR21
WADR20
WADR19
WADR18
WADR17
WADR16
WADR15
WADR14
WADR13
WADR12
WADR11
WADR10
WADR9
WADR8
WADR7
WADR6
WADR5
WADR4
WADR3
WADR2
WADR1
WADR0
RADR23
RADR22
RADR21
RADR20
RADR19
RADR18
RADR17
RADR16
RADR15
RADR14
RADR13
RADR12
RADR11
RADR10
RADR9
RADR8
RADR7
RADR6
RADR5
RADR4
RADR3
RADR2
RADR1
RADR0
RADR LD *
MEMO WE
MEMO RE
RD CT ENB
1/6 MEMO REC *
1/6 MEMO READ *
RD ADR 4/6
WR CT ENB 4/6
MEMO WR FULL * 1/6
MEMO RD FULL * 1/6
RD CT ENB 6/6

EDIT

ED-20 BOARD (5/6)

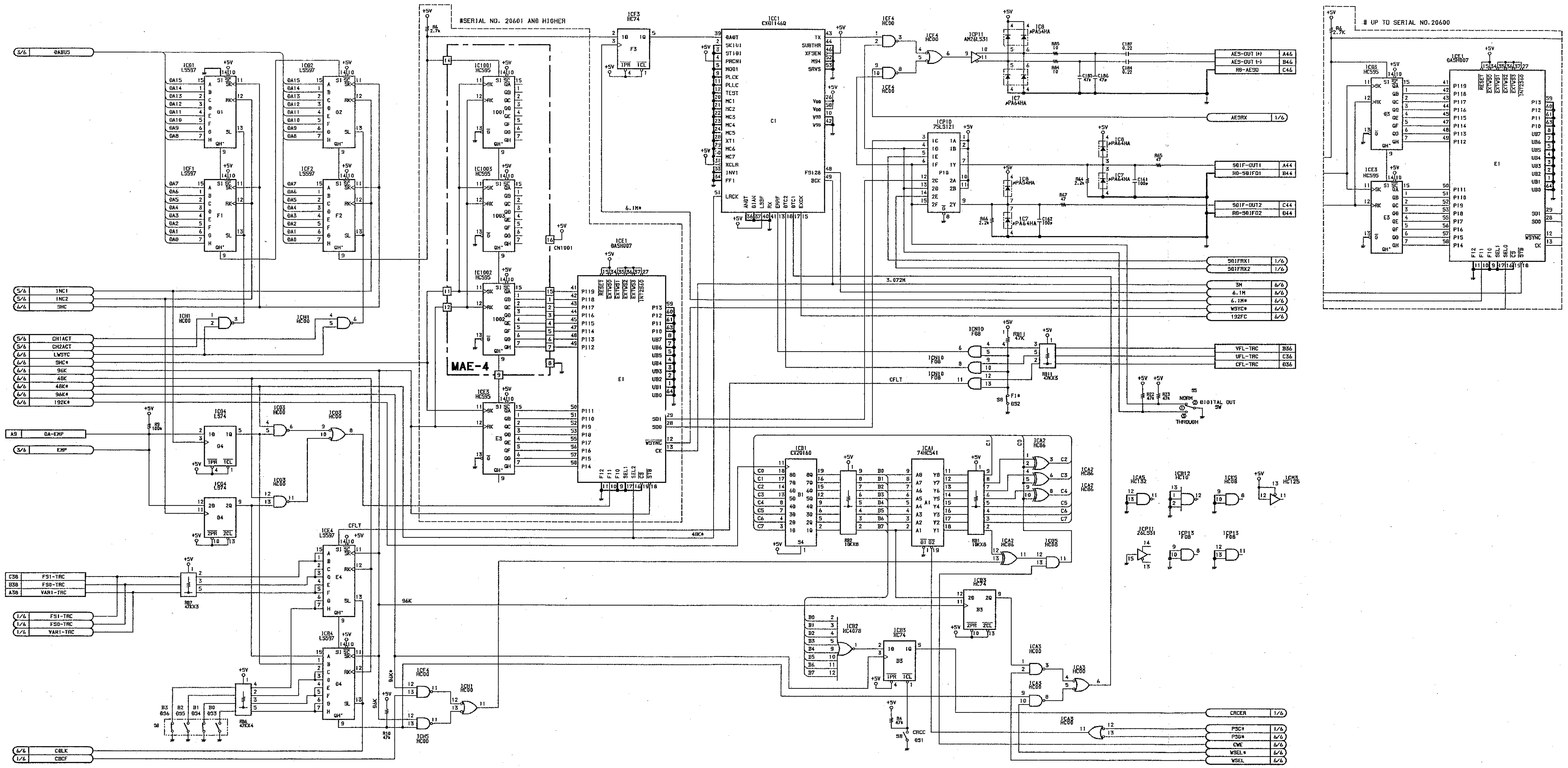
BOARD NO.1-627-111-11 & HIGHER
PCM-3348


A30 +15V
A32 AGND
A45 AES-IN (+)
B45 AES-IN (-)
C45 RG-AES1
2/6 AESRX
C43 SDIF-IN 2
D43 RG-SDIF1 2
A43 SDIF-IN 1
B43 RG-SDIF1 1
2/6 SDIFRX2
2/6 SDIFRX1
5/6 IDC1*
5/6 2RSV*
5/6 SOEN*
6/6 WSYC*
6/6 12.3M
IC1 78L08
IC3 78L05
IC4 TLC272CP
IC2 CX23065
IC6 CXD1146Q
ICQ10 AM26LS32
ICQ9 75LS124
ICN6 DASH006
ICN9 CX20160
ICK5 HC08
ICQ12 AM26LS31
ICA11 HC4075
FS MISMATCH
ID CHECK*
AES/EBU UNLOCK
CRC ERR2
CRC ERR1
AES/EBUWCLK (+) A60
AES/EBUWCLK (-) B60
BON* 5/6
FS1-TRC 2/6
FS0-TRC 2/6
VARI-TRC 2/6
24K 6/6
PSC* 2/6
BON 5/6
192K* 6/6
CRCER 2/6
96K 6/6
DIN-ACTIVE * C23
EDIT-INEMPO B15
BLKID* A37
VFL-AES B37
UFL-AES C37
CFL-AES D37
VARI-AES A39
FS0-AES B39
FS1-AES C39
CBCF 2/6
AOG2A* 5/6
48K 6/6
AOG1A* 5/6
AOGS* 5/6
EDIT-IN15 D13
EDIT-IN14 C13
EDIT-IN13 B13
EDIT-IN12 A13
EDIT-IN11 D12
EDIT-IN10 C12
EDIT-IN9 B12
EDIT-IN8 A12
EDIT-IN7 D11
EDIT-IN6 C11
EDIT-IN5 B11
EDIT-IN4 A11
EDIT-IN3 D10
EDIT-IN2 C10
EDIT-IN1 B10
EDIT-IN0 A10
INP-STB* A28
EDST* 5/6
SOCN* 5/6

Meter & AES/EBU DIO

MAE-1 BOARD (1/6)

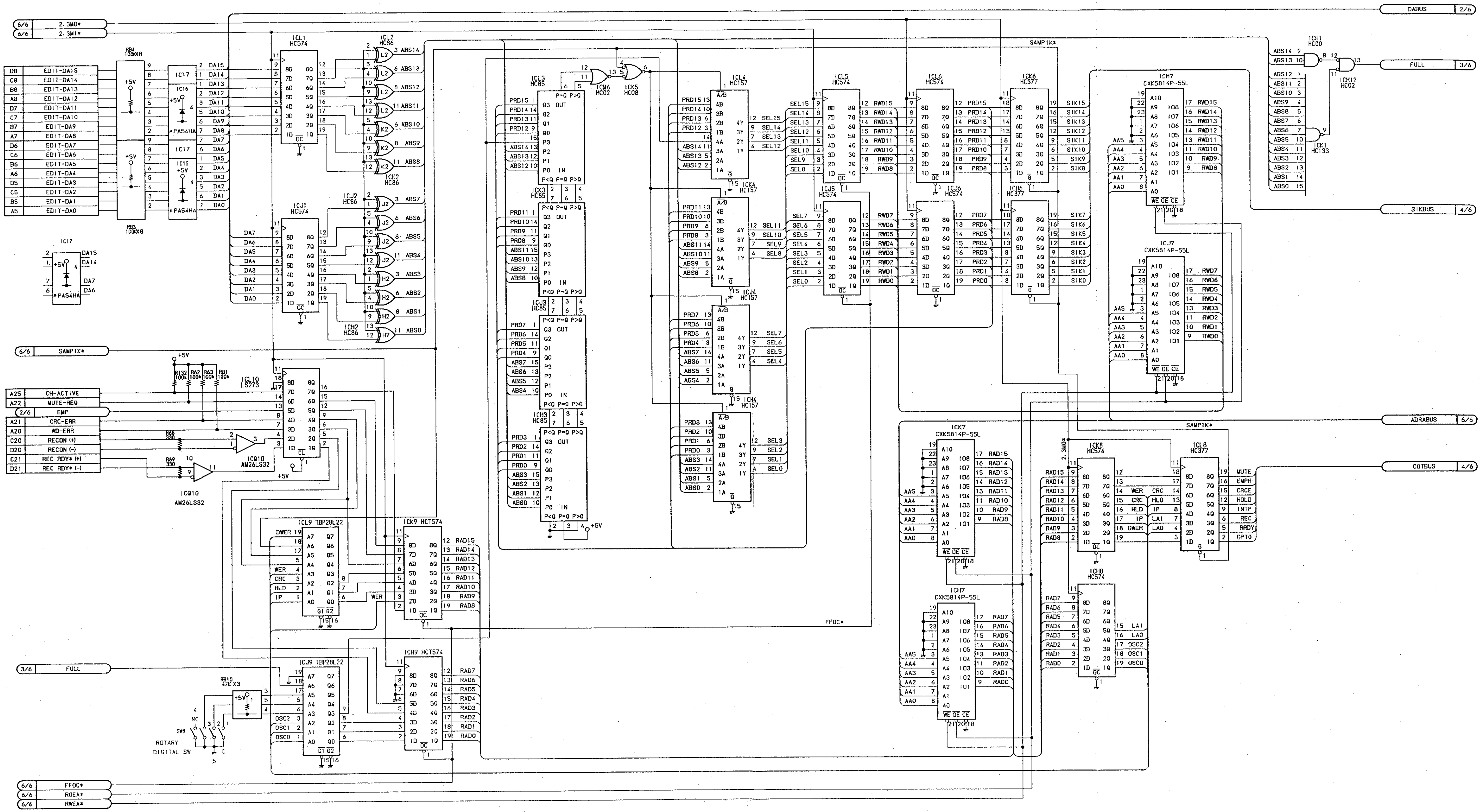
BOARD NO.1-627-118-11 & HIGHER
PCM-3348


#SERIAL NO. 20601 AND HIGHER
# UP TO SERIAL NO.20600
MAE-4
CN1001
ICC1 CXD1146Q
ICE1 0A5H007
ICF3 HC74
ICP11 AM26LS31
ICP10 75LS121
ICB1 CX20160
ICA1 74HC541
ICD1 LS597
ICD2 LS597
ICF1 LS597
ICF2 LS597
IC1001 HC595
IC1002 HC595
IC1003 HC595
ICE3 HC595
ICE4 LS597
ICB4 LS597
ICD4 LS74
ICB2 HC4078
ICB3 HC74
DABUS
INC1
INC2
SHC
CH1ACT
CH2ACT
LWSYC
SHC*
96K
48K
48K*
96K*
192K*
DA-EMP
EMP
FS1-TRC
FS0-TRC
VAR1-TRC
CBLK
CBCF
AES-OUT (+)
AES-OUT (-)
R0-AE3D
AESRX
SDIF-OUT1
R0-SDIFO1
SDIF-OUT2
R0-SDIFO2
SDIFRX1
SDIFRX2
3M
6.1M
6.1M*
WSYC*
192FC
VFL-TRC
UFL-TRC
CFL-TRC
3.072M
CFLT
CRCER
PSC*
PSG*
CWE
WSEL*
WSEL
DIGITAL OUT SW
NORM
THROUGH
CRCC

Meter & AES/EBU D10

MAE-1 BOARD (2/6)

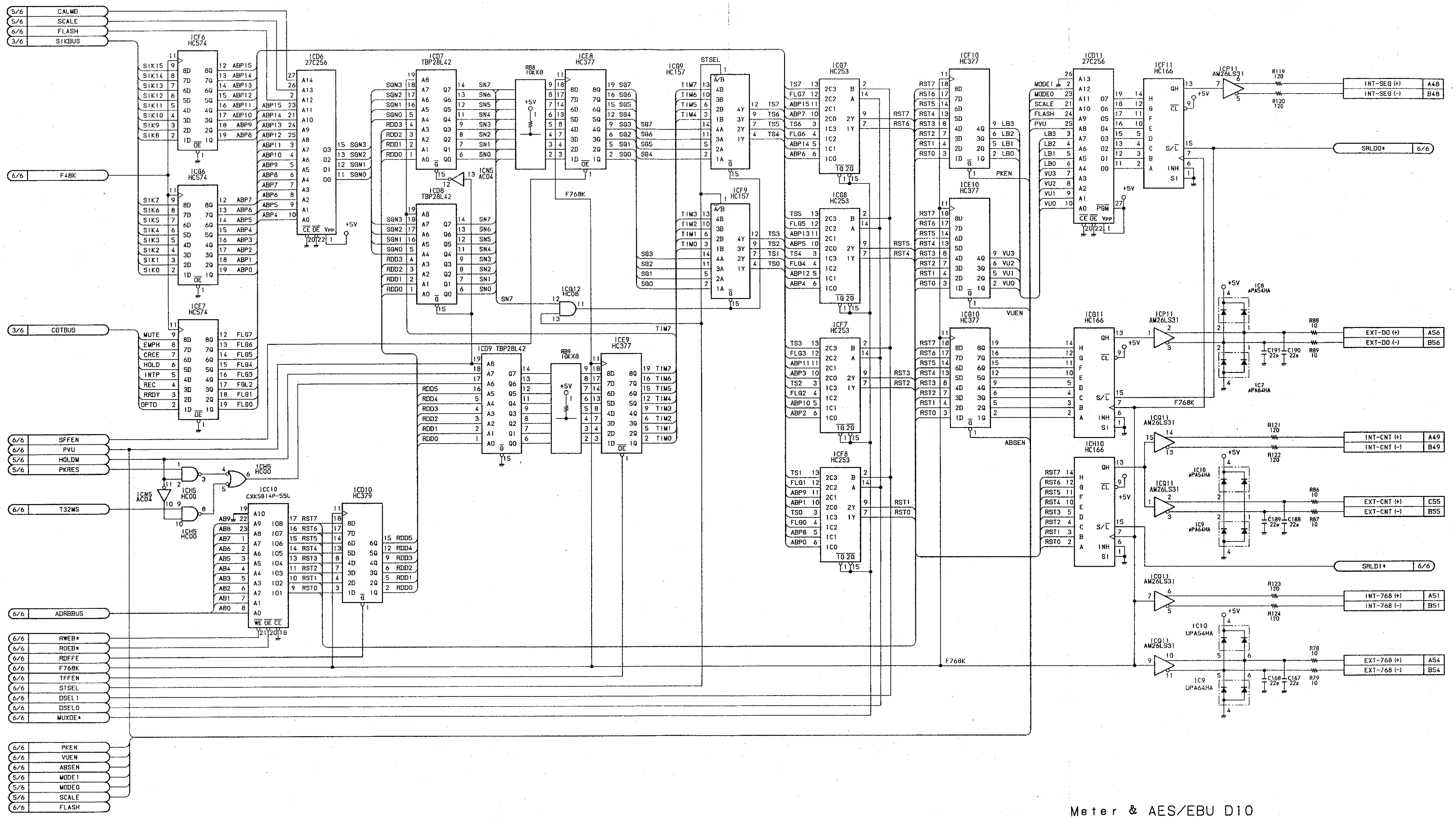
BOARD NO.1-627-118-11 & HIGHER
PCM-3348


DABUS 2/6
6/6 2.3M0*
6/6 2.3M1*
SAMP1K*
FULL 3/6
SIKBUS 4/6
ADRABUS 6/6
COTBUS 4/6
6/6 SAMP1K*
3/6 FULL
6/6 FFOC*
6/6 RDEA*
6/6 RWEA*
RB4 100KX8
RB3 100KX8
IC17
IC16
IC15
PA54HA
ICL1 HC574
ICL2 HC86
ICJ1 HC574
ICJ2 HC86
ICK2 HC86
ICH2 HC86
ICL3 HC85
ICK3 HC85
ICJ3 HC85
ICH3 HC85
ICM6 HC02
ICK5 HC08
ICL4 HC157
ICK4 HC157
ICJ4 HC157
ICH4 HC157
ICL5 HC574
ICJ5 HC574
ICL6 HC574
ICJ6 HC574
ICK6 HC377
ICH6 HC377
ICM7 CXK5814P-55L
ICJ7 CXK5814P-55L
ICK7 CXK5814P-55L
ICH7 CXK5814P-55L
ICH1 HC00
ICH12 HC02
ICK1 HC133
ICL10 LS273
ICQ10 AM26LS32
ICL9 TBP28L22
ICJ9 TBP28L22
ICK9 HCT574
ICH9 HCT574
ICK8 HC574
ICH8 HC574
ICL8 HC377
RB10 47K X3
A25 CH-ACTIVE
A22 MUTE-REQ
2/6 EMP
A21 CRC-ERR
A20 WD-ERR
C20 RECON (+)
D20 RECON (-)
C21 REC RDY* (+)
D21 REC RDY* (-)
R68 330
R69 330
R132 R62 R63 R81 100K
SW9
ROTARY DIGITAL SW
MUTE EMPH CRCE HOLD INTP REC RRDY OPTO
+5V

Meter & AES/EBU D10

MAE-1 BOARD (3/6)

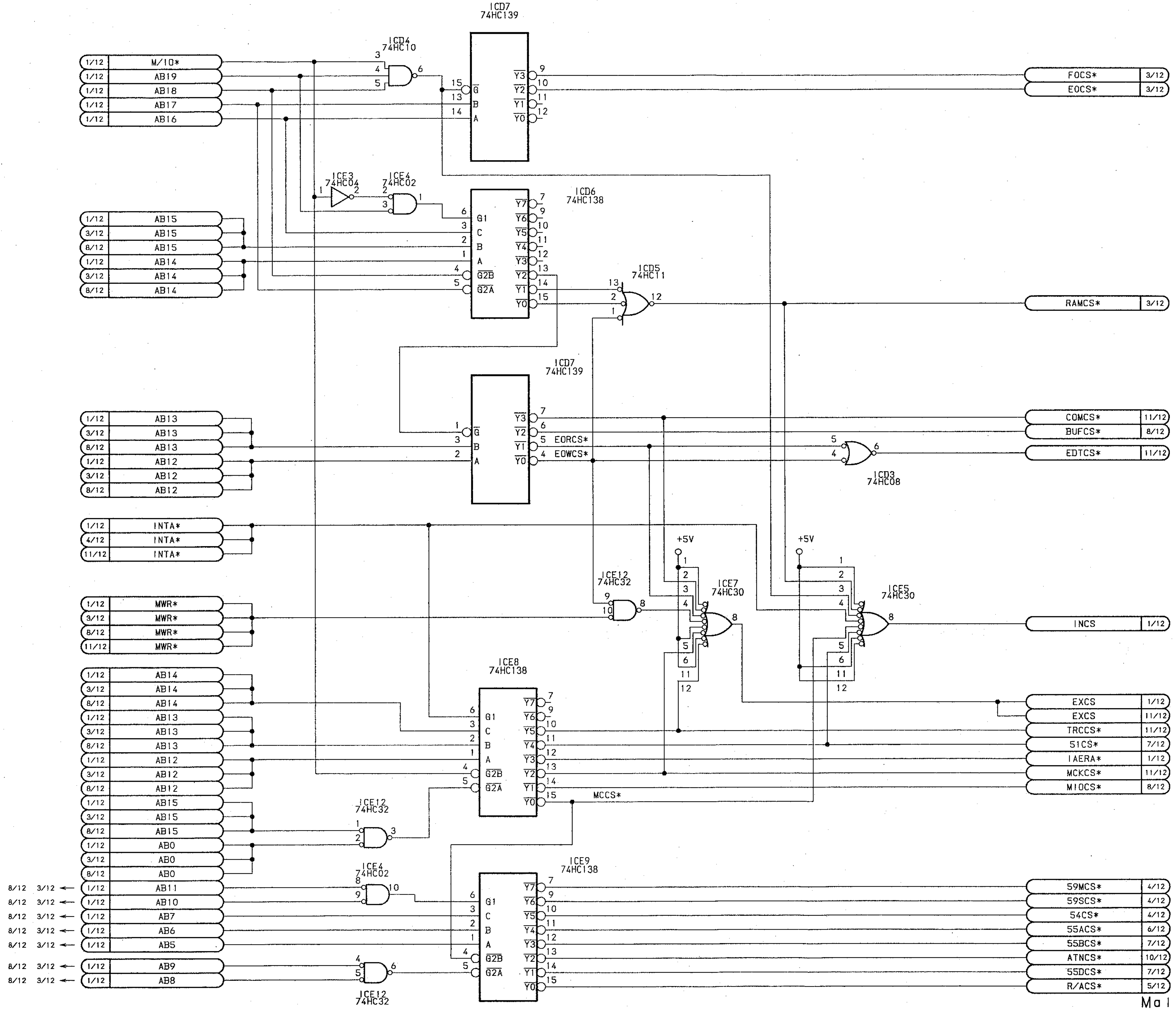
BOARD NO.1-627-118-11 & HIGHER
PCM-3348


CALMD
SCALE
FLASH
SIKBUS
F48K
COTBUS
SFFEN
PVU
HOLDM
PKRES
T32MS
ADRBBUS
RWEB*
ROEB*
RDFFE
F768K
TFFEN
STSEL
DSEL1
DSEL0
MUXOE*
PKEN
VUEN
ABSEN
MODE1
MODE0
ICF6 HC574
ICG6 HC574
ICE7 HC574
ICD6 27C256
ICD7 TBP28L42
ICD8 TBP28L42
ICD9 TBP28L42
RB8 10KX8
RB9 10KX8
ICE8 HC377
ICE9 HC377
ICG9 HC157
ICF9 HC157
ICG12 HC08
ICN5 AC04
ICH5 HC00
ICC10 CXK5814P-55L
ICD10 HC379
ICG7 HC253
ICG8 HC253
ICF7 HC253
ICF8 HC253
ICF10 HC377
ICE10 HC377
ICG10 HC377
ICD11 27C256
ICF11 HC166
ICG11 HC166
ICH10 HC166
ICP11 AM26LS31
ICQ11 AM26LS31
IC8 μPA54HA
IC7 μPA64HA
IC10 μPA54HA
IC9 μPA64HA
INT-SEG (+)
INT-SEG (-)
SRLD0*
EXT-DO (+)
EXT-DO (-)
INT-CNT (+)
INT-CNT (-)
EXT-CNT (+)
EXT-CNT (-)
SRLD1*
INT-768 (+)
INT-768 (-)
EXT-768 (+)
EXT-768 (-)
A48
B48
A56
B56
A49
B49
C55
B55
A51
B51
A54
B54
+5V

Meter & AES/EBU DIO

MAE-1 BOARD (4/6)

BOARD NO.1-627-118-11 & HIGHER
PCM-3348

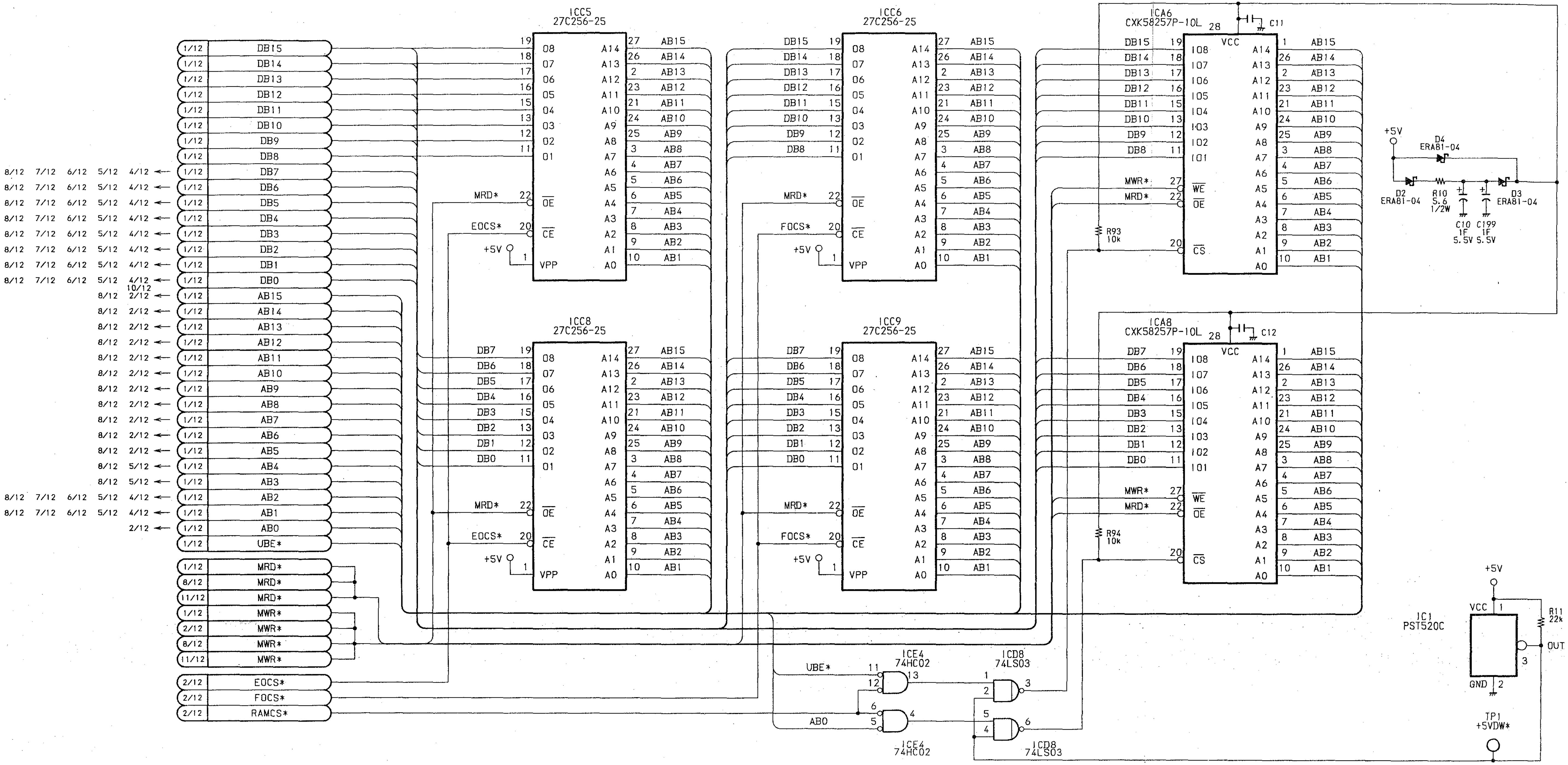

ICD7
74HC139
ICD4
74HC10
M/IO*
AB19
AB18
AB17
AB16
AB15
AB14
AB13
AB12
AB11
AB10
AB9
AB8
AB7
AB6
AB5
AB0
1/12
3/12
4/12
8/12
11/12
G
B
A
G1
C
G2B
G2A
Y0
Y1
Y2
Y3
Y4
Y5
Y6
Y7
ICE3
74HC04
ICE4
74HC02
ICD6
74HC138
ICD5
74HC11
EORCS*
EOWCS*
ICD3
74HC08
INTA*
MWR*
+5V
ICE12
74HC32
ICE7
74HC30
ICE5
74HC30
ICE8
74HC138
ICE9
74HC138
MCCS*
FOCS*
EOCS*
RAMCS*
COMCS*
BUFCS*
EDTCS*
INCS
EXCS
TRCCS*
51CS*
IAERA*
MCKCS*
MIOCS*
59MCS*
59SCS*
54CS*
55ACS*
55BCS*
ATNCS*
55DCS*
R/ACS*
3/12
4/12
5/12
6/12
7/12
10/12
11/12

	RF. NO	VCC	GND
74HC02	ICE4	14	7
74HC04		14	7
74HC08	ICD3	14	7
74HC10		14	7
74HC30	ICE7	14	7
74HC30	ICE5	14	7
74HC32	ICE12	14	7
74HC138	ICD6	16	8
74HC138		16	8
74HC138	ICE8	16	8
74HC138	ICE9	16	8
74HC139	ICD7	16	8
74HC11	ICD5	14	7

Main CPU

MC-33/33A BOARD (2/12)

BOARD NO.1-627-112-11 & HIGHER
PCM-3348


ICC5
27C256-25
ICC6
27C256-25
ICC8
27C256-25
ICC9
27C256-25
ICA6
CXK58257P-10L
ICA8
CXK58257P-10L
C11
C12
VCC
IC1
PST520C
VCC
GND
OUT
R11
22k
+5V
TP1
+5VDW*
D4
ERA81-04
D2
ERA81-04
R10
5.6
1/2W
D3
ERA81-04
C10
1F
5.5V
C199
1F
5.5V
R93
10k
R94
10k
ICE4
74HC02
ICD8
74LS03
UBE*
AB0
DB15
DB14
DB13
DB12
DB11
DB10
DB9
DB8
DB7
DB6
DB5
DB4
DB3
DB2
DB1
DB0
AB15
AB14
AB13
AB12
AB11
AB10
AB9
AB8
AB7
AB6
AB5
AB4
AB3
AB2
AB1
AB0
UBE*
MRD*
MWR*
EOCS*
FOCS*
RAMCS*
O8
O7
O6
O5
O4
O3
O2
O1
I08
I07
I06
I05
I04
I03
I02
I01
A14
A13
A12
A11
A10
A9
A8
A7
A6
A5
A4
A3
A2
A1
A0
OE
CE
CS
WE
VPP
1/12
2/12
4/12
5/12
6/12
7/12
8/12
10/12
11/12

	RF. NO	VCC	GND
27C256-25	C5	28	14
27C256-25	C8	28	14
27C256-25	C6	28	14
27C256-25	C9	28	14
74HC02	E4	14	7
74LS03	D8	14	7

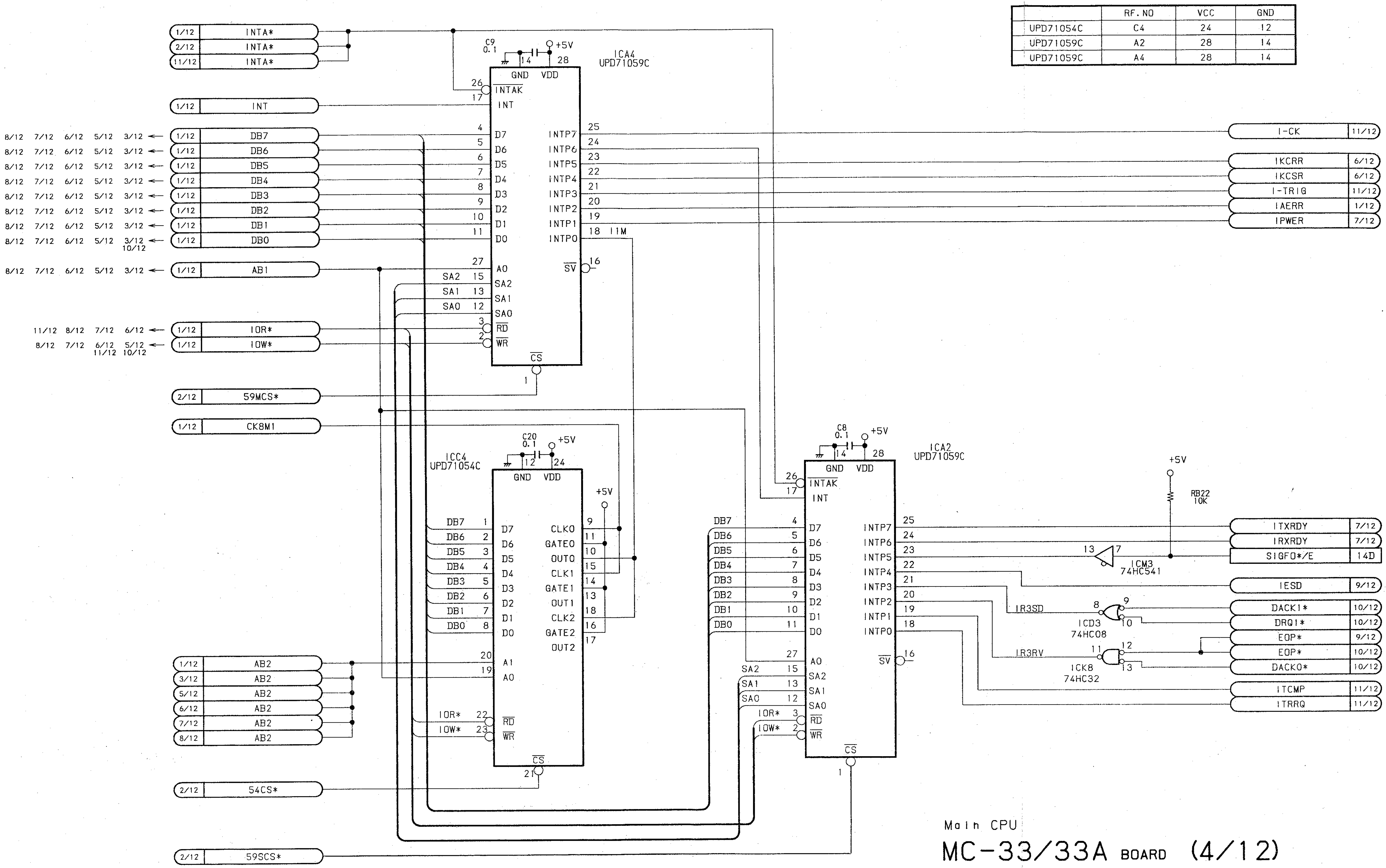
	RF. NO	RAM VCC	GND
CXK58257P-10LL	A6	28	14
CXK58257P-10LL	A8	28	14

Main CPU

MC-33/33A BOARD (3/12)

BOARD NO. 1-627-112-11 & HIGHER
PCM-3348

	RF.NO	VCC	GND
UPD71054C	C4	24	12
UPD71059C	A2	28	14
UPD71059C	A4	28	14

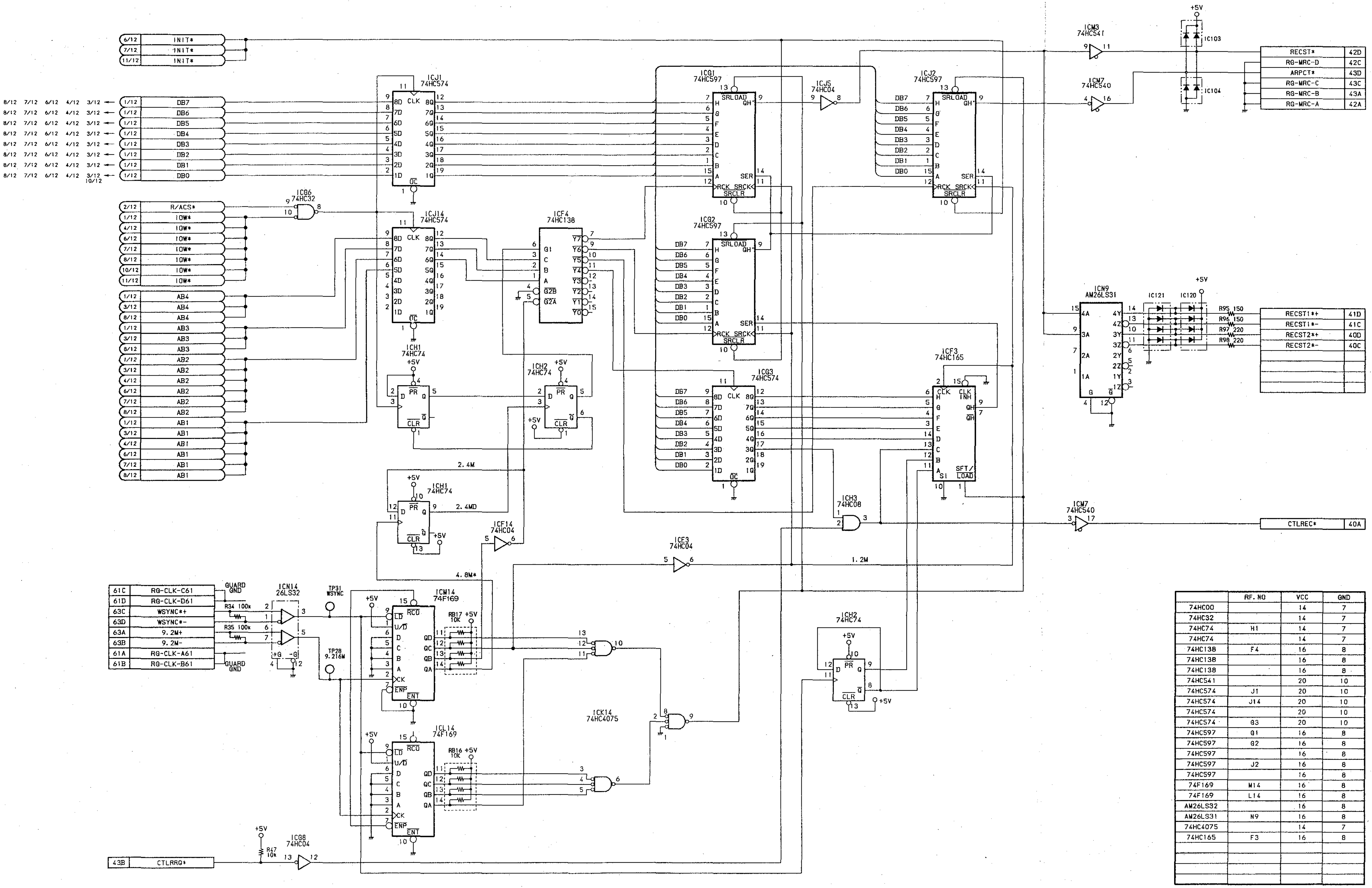


1/12 INTA*
2/12 INTA*
11/12 INTA*
1/12 INT
8/12 7/12 6/12 5/12 3/12 1/12 DB7
8/12 7/12 6/12 5/12 3/12 1/12 DB6
8/12 7/12 6/12 5/12 3/12 1/12 DB5
8/12 7/12 6/12 5/12 3/12 1/12 DB4
8/12 7/12 6/12 5/12 3/12 1/12 DB3
8/12 7/12 6/12 5/12 3/12 1/12 DB2
8/12 7/12 6/12 5/12 3/12 1/12 DB1
8/12 7/12 6/12 5/12 3/12 10/12 1/12 DB0
8/12 7/12 6/12 5/12 3/12 1/12 AB1
11/12 8/12 7/12 6/12 1/12 IOR*
8/12 7/12 6/12 11/12 5/12 10/12 1/12 IOW*
2/12 59MCS*
1/12 CK8M1
C9 0.1
+5V
GND VDD
ICA4 UPD71059C
INTAK INT D7 D6 D5 D4 D3 D2 D1 D0 A0 SA2 SA1 SA0 RD WR CS
INTP7 INTP6 INTP5 INTP4 INTP3 INTP2 INTP1 INTP0 SV
11M
I-CK 11/12
IKCRR 6/12
IKCSR 6/12
I-TRIG 11/12
IAERR 1/12
IPWER 7/12
C20 0.1
ICC4 UPD71054C
CLK0 GATE0 OUT0 CLK1 GATE1 OUT1 CLK2 GATE2 OUT2
A1 A0
IOR* IOW*
1/12 AB2
3/12 AB2
5/12 AB2
6/12 AB2
7/12 AB2
8/12 AB2
2/12 54CS*
2/12 59SCS*
C8 0.1
ICA2 UPD71059C
ITXRDY 7/12
IRXRDY 7/12
SIGFO*/E 14D
IESD 9/12
DACK1* 10/12
DRQ1* 10/12
EOP* 9/12
EOP* 10/12
DACK0* 10/12
ITCMP 11/12
ITRRQ 11/12
RB22 10K
ICM3 74HC541
ICD3 74HC08
ICK8 74HC32
IR3SD
IR3RV

Main CPU

MC-33/33A BOARD (4/12)

BOARD NO.1-627-112-11 & HIGHER
PCM-3348



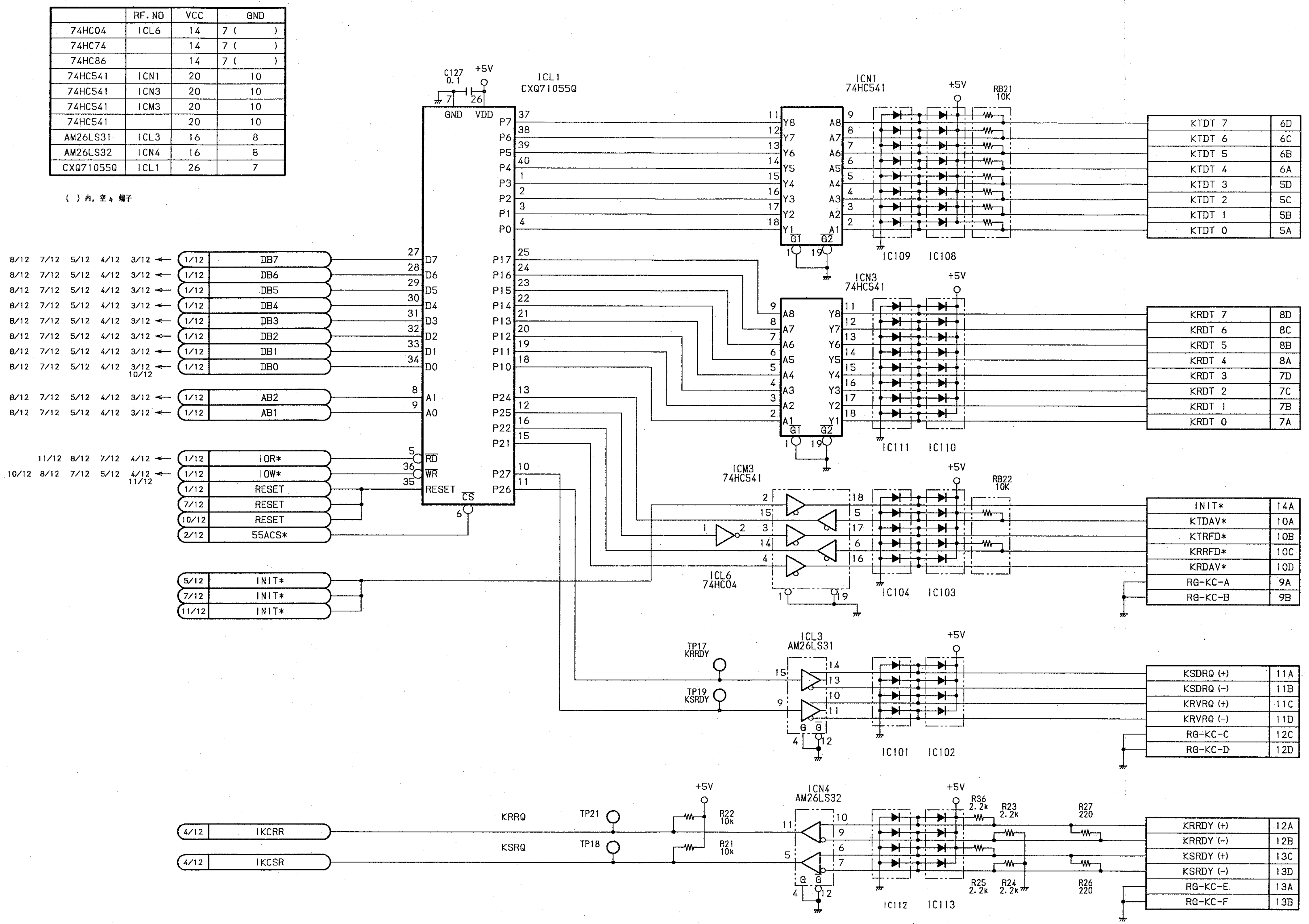
INIT*
DB7
DB6
DB5
DB4
DB3
DB2
DB1
DB0
R/ACS*
IOW*
AB4
AB3
AB2
AB1
ICJ1 74HC574
ICJ14 74HC574
ICG6 74HC32
ICF4 74HC138
ICH1 74HC74
ICH2 74HC74
ICG1 74HC597
ICG2 74HC597
ICG3 74HC574
ICJ5 74HC04
ICJ2 74HC597
ICF3 74HC165
ICH3 74HC08
ICM3 74HC541
ICM7 74HC540
ICN9 AM26LS31
IC103
IC104
IC121
IC120
R95 150
R96 150
R97 220
R98 220
RECST*
RG-MRC-D
ARPCT*
RG-MRC-C
RG-MRC-B
RG-MRC-A
42D
42C
43D
43C
43A
42A
RECST1*+
RECST1*-
RECST2*+
RECST2*-
41D
41C
40D
40C
CTLREC*
40A
2.4M
2.4MD
4.8M*
1.2M
ICF14 74HC04
ICE3 74HC04
RG-CLK-C61
RG-CLK-D61
WSYNC*+
WSYNC*-
9.2M+
9.2M-
RG-CLK-A61
RG-CLK-B61
61C
61D
63C
63D
63A
63B
61A
61B
GUARD GND
R34 100k
R35 100k
ICN14 26LS32
TP31 WSYNC
TP28 9.216M
ICM14 74F169
ICL14 74F169
RB17 10K
RB16 10K
ICK14 74HC4075
ICH2 74HC74
ICG8 74HC04
R47 10k
43B
CTLRRQ*
+5V

	RF. NO	VCC	GND
74HC00		14	7
74HC32		14	7
74HC74	H1	14	7
74HC74		14	7
74HC138	F4	16	8
74HC138		16	8
74HC138		16	8
74HC541		20	10
74HC574	J1	20	10
74HC574	J14	20	10
74HC574		20	10
74HC574	G3	20	10
74HC597	G1	16	8
74HC597	G2	16	8
74HC597		16	8
74HC597	J2	16	8
74HC597		16	8
74F169	M14	16	8
74F169	L14	16	8
AM26LS32		16	8
AM26LS31	N9	16	8
74HC4075		14	7
74HC165	F3	16	8

Main CPU

MC-33/33A BOARD (5/12)

BOARD NO.1-627-112-11 & HIGHER
PCM-3348


C127
0.1
+5V
GND
VDD
ICL1
CXQ71055Q
P7
P6
P5
P4
P3
P2
P1
P0
D7
D6
D5
D4
D3
D2
D1
D0
P17
P16
P15
P14
P13
P12
P11
P10
A1
A0
P24
P25
P22
P21
RD
WR
RESET
CS
P27
P26
8/12 7/12 5/12 4/12 3/12
1/12 DB7
1/12 DB6
1/12 DB5
1/12 DB4
1/12 DB3
1/12 DB2
1/12 DB1
1/12 DB0
10/12
1/12 AB2
1/12 AB1
11/12 8/12 7/12 4/12
1/12 IOR*
10/12 8/12 7/12 5/12 4/12
11/12
1/12 IOW*
1/12 RESET
7/12 RESET
10/12 RESET
2/12 55ACS*
5/12 INIT*
7/12 INIT*
11/12 INIT*
ICN1
74HC541
RB21
10K
IC109
IC108
KTDT 7 6D
KTDT 6 6C
KTDT 5 6B
KTDT 4 6A
KTDT 3 5D
KTDT 2 5C
KTDT 1 5B
KTDT 0 5A
ICN3
74HC541
IC111
IC110
KRDT 7 8D
KRDT 6 8C
KRDT 5 8B
KRDT 4 8A
KRDT 3 7D
KRDT 2 7C
KRDT 1 7B
KRDT 0 7A
ICM3
74HC541
ICL6
74HC04
RB22
10K
IC104
IC103
INIT* 14A
KTDAV* 10A
KTRFD* 10B
KRRFD* 10C
KRDAV* 10D
RG-KC-A 9A
RG-KC-B 9B
TP17
KRRDY
TP19
KSRDY
ICL3
AM26LS31
IC101
IC102
KSDRQ (+) 11A
KSDRQ (-) 11B
KRVRQ (+) 11C
KRVRQ (-) 11D
RG-KC-C 12C
RG-KC-D 12D
KRRQ
KSRQ
TP21
TP18
R22
10k
R21
10k
ICN4
AM26LS32
R36
2.2k
R23
2.2k
R27
220
R25
2.2k
R24
2.2k
R26
220
IC112
IC113
4/12 IKCRR
4/12 IKCSR
KRRDY (+) 12A
KRRDY (-) 12B
KSRDY (+) 13C
KSRDY (-) 13D
RG-KC-E 13A
RG-KC-F 13B

	RF.NO	VCC	GND
74HC04	ICL6	14	7 (　　)
74HC74		14	7 (　　)
74HC86		14	7 (　　)
74HC541	ICN1	20	10
74HC541	ICN3	20	10
74HC541	ICM3	20	10
74HC541		20	10
AM26LS31	ICL3	16	8
AM26LS32	ICN4	16	8
CXQ71055Q	ICL1	26	7

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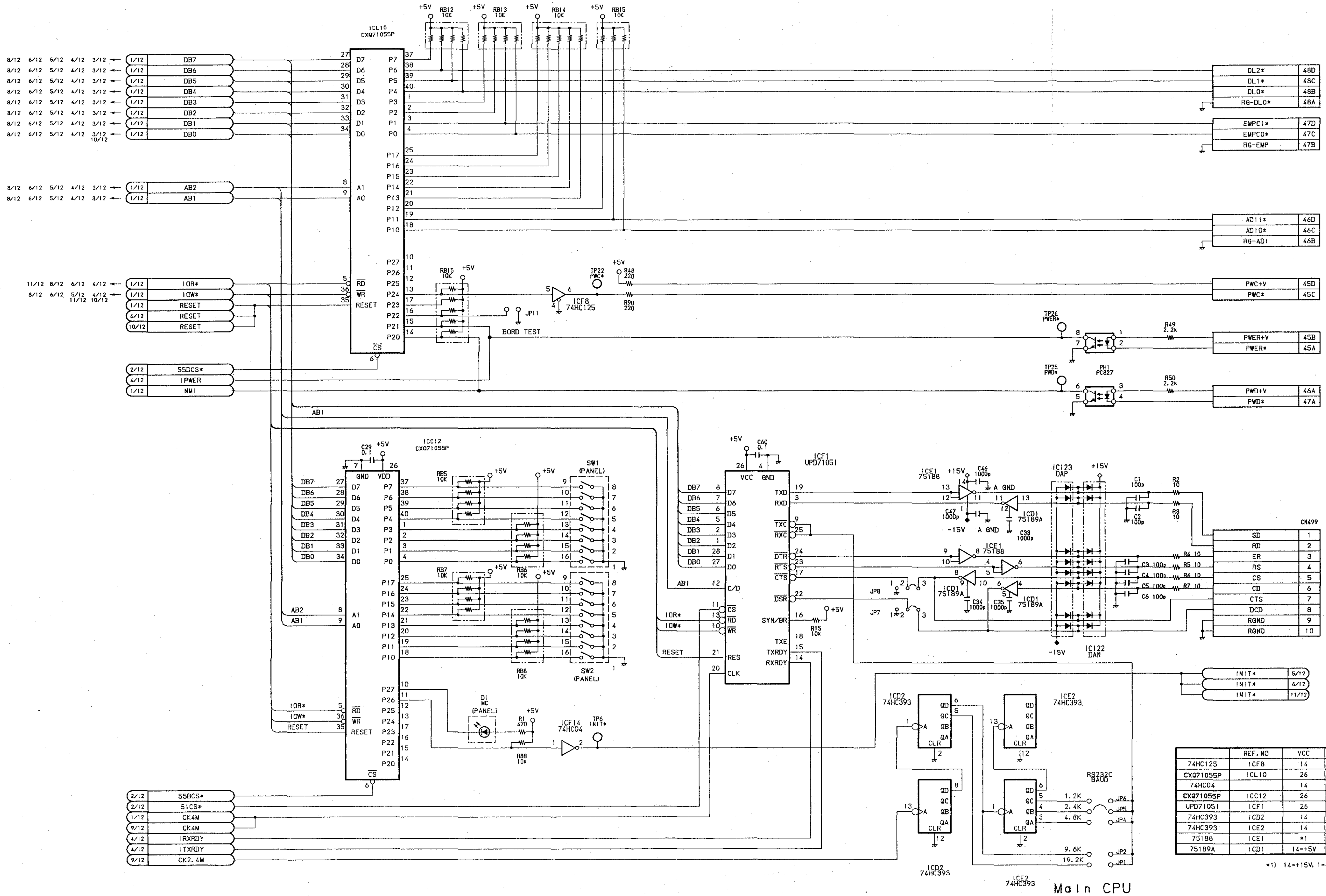
Main CPU

MC-33/33A BOARD (6/12)

BOARD NO.1-627-112-11 & HIGHER
PCM-3348


ICL10
CXQ71055P
ICC12
CXQ71055P
ICF1
UPD71051
ICF8
74HC125
ICF14
74HC04
ICE1
75188
ICD1
75189A
IC123
DAP
IC122
DAN
ICD2
74HC393
ICE2
74HC393
PH1
PC827
RB12 10K
RB13 10K
RB14 10K
RB15 10K
RB5 10K
RB6 10K
RB7 10K
RB8 10K
SW1 (PANEL)
SW2 (PANEL)
D1 MC (PANEL)
R1 470
R88 10k
R48 220
R90 220
R49 2.2k
R50 2.2k
R15 10k
TP22 PWC*
TP26 PWER*
TP25 PWD*
TP6 INIT*
JP11
BORD TEST
+5V
+15V
-15V
A GND
C29 0.1
C60 0.1
C46 1000p
C47 1000p
C33 1000p
C34 1000p
C35 1000p
C1 100p
C2 100p
C3 100p
C4 100p
C5 100p
C6 100p
R2 10
R3 10
R4 10
R5 10
R6 10
R7 10
DB7
DB6
DB5
DB4
DB3
DB2
DB1
DB0
AB2
AB1
IOR*
IOW*
RESET
55DCS*
IPWER
NMI
55BCS*
51CS*
CK4M
IRXRDY
ITXRDY
CK2.4M
DL2* 48D
DL1* 48C
DL0* 48B
RG-DL0* 48A
EMPC1* 47D
EMPC0* 47C
RG-EMP 47B
AD11* 46D
AD10* 46C
RG-AD1 46B
PWC+V 45D
PWC* 45C
PWER+V 45B
PWER* 45A
PWD+V 46A
PWD* 47A
CN499
SD 1
RD 2
ER 3
RS 4
CS 5
CD 6
CTS 7
DCD 8
RGND 9
RGND 10
INIT* 5/12
INIT* 6/12
INIT* 11/12
TXD
RXD
TXC
RXC
DTR
RTS
CTS
DSR
SYN/BR
TXE
TXRDY
RXRDY
C/D
RES
CLK
JP8
JP7
RS232C BAUD
1.2K
2.4K
4.8K
9.6K
19.2K
JP6
JP5
JP4
JP2
JP1
QD
QC
QB
QA
CLR

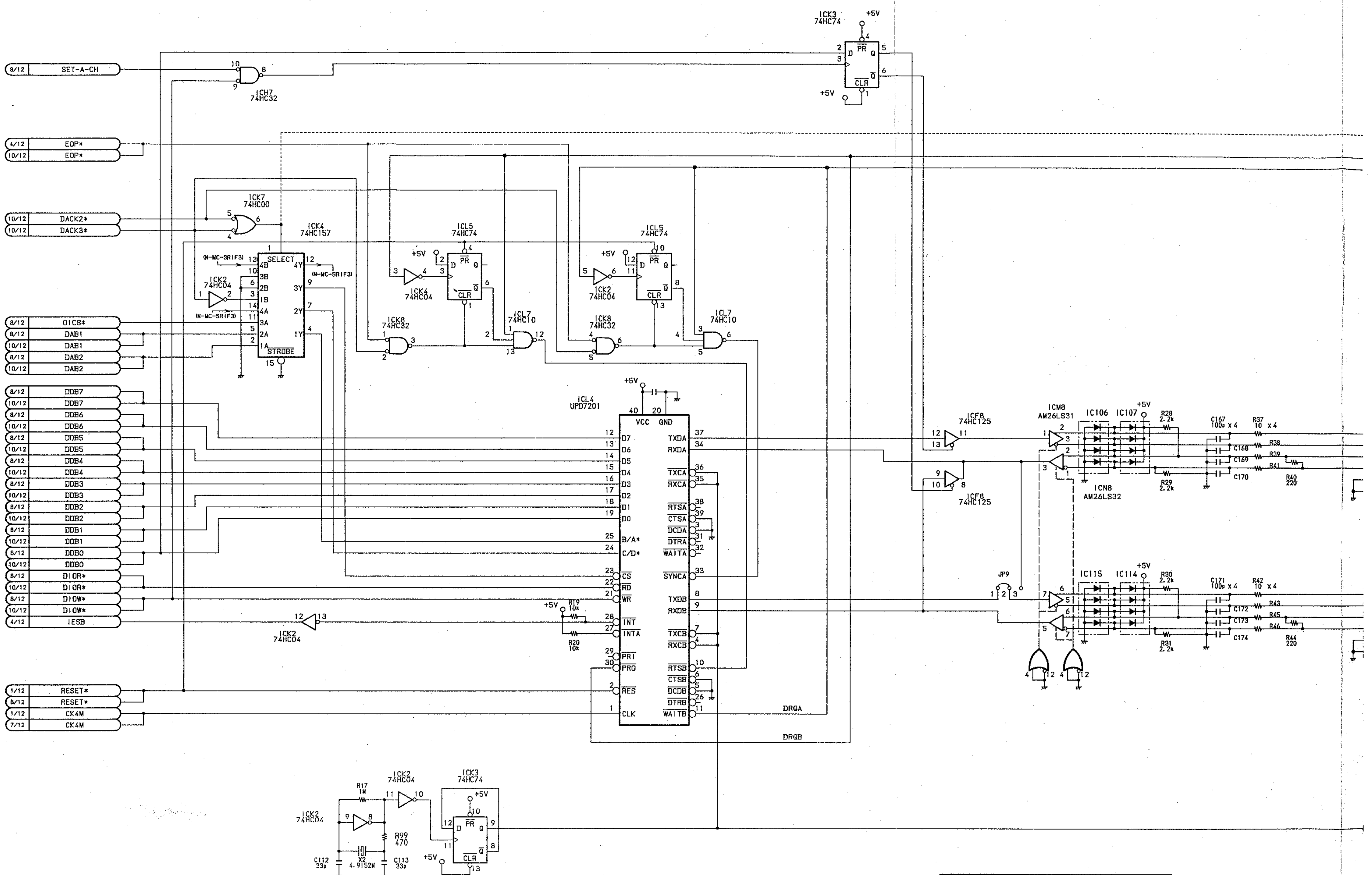
	REF. NO	VCC	GND
74HC125	ICF8	14	7
CXQ71055P	ICL10	26	7.
74HC04		14	7
CXQ71055P	ICC12	26	7
UPD71051	ICF1	26	4
74HC393	ICD2	14	7
74HC393	ICE2	14	7
75188	ICE1	*1	7
75189A	ICD1	14=+5V	7

*1) 14=+15V, 1=-15V

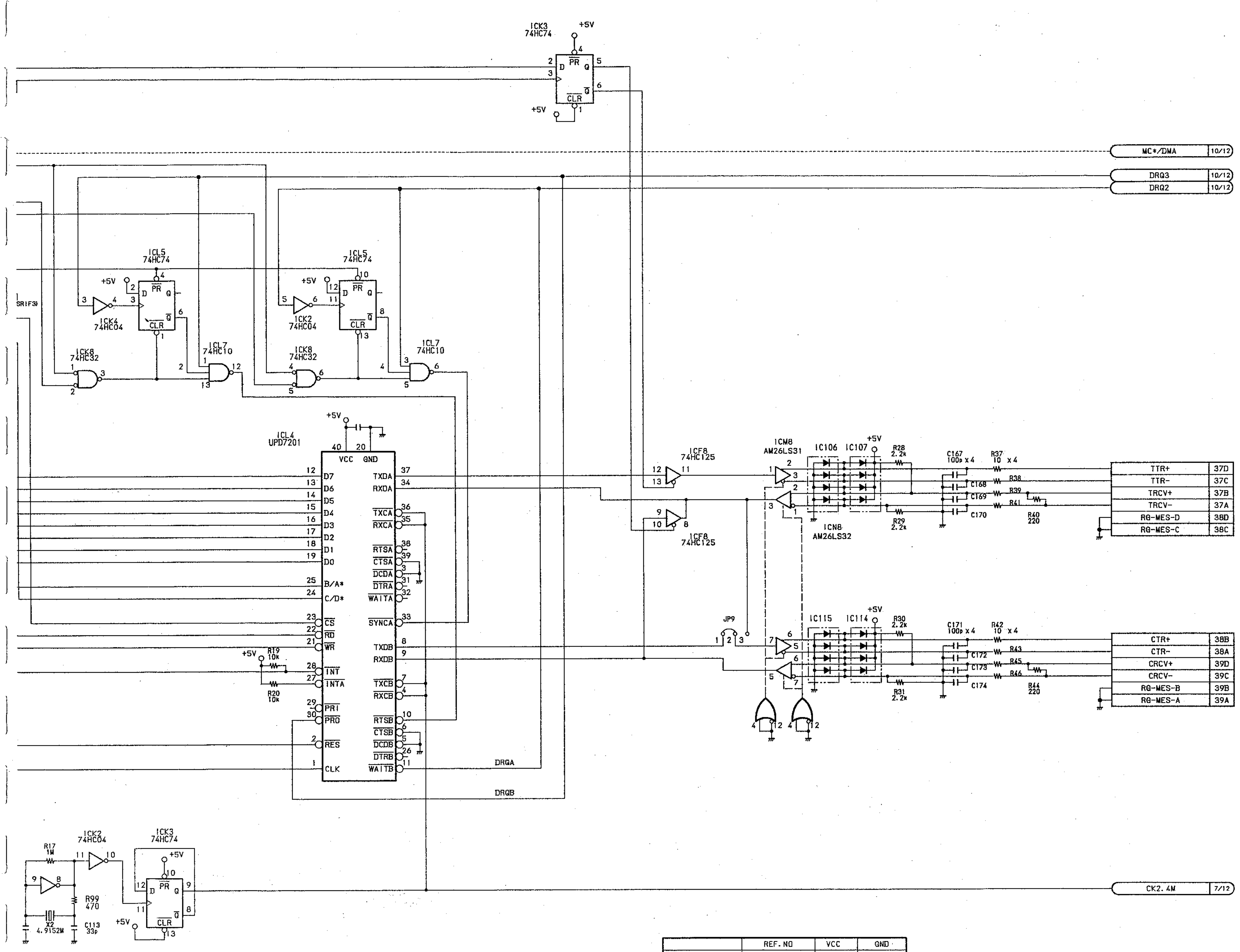
Main CPU

MC-33/33A BOARD (7/12)

BOARD NO.1-627-112-11 & HIGHER
PCM-3348


8/12 SET-A-CH
4/12 EOP*
10/12 EOP*
10/12 DACK2*
10/12 DACK3*
8/12 O1CS*
8/12 DAB1
10/12 DAB1
8/12 DAB2
10/12 DAB2
8/12 DDB7
10/12 DDB7
8/12 DDB6
10/12 DDB6
8/12 DDB5
10/12 DDB5
8/12 DDB4
10/12 DDB4
8/12 DDB3
10/12 DDB3
8/12 DDB2
10/12 DDB2
8/12 DDB1
10/12 DDB1
8/12 DDB0
10/12 DDB0
8/12 DIOR*
10/12 DIOR*
8/12 DIOW*
10/12 DIOW*
4/12 IESB
1/12 RESET*
8/12 RESET*
1/12 CK4M
7/12 CK4M
ICH7 74HC32
ICK3 74HC74
+5V
ICK7 74HC00
ICK4 74HC157
SELECT
STROBE
(N-MC-SRIF3)
ICK2 74HC04
ICK4 74HC04
ICL5 74HC74
ICK8 74HC32
ICL7 74HC10
ICL4 UPD7201
VCC
GND
D7
D6
D5
D4
D3
D2
D1
D0
B/A*
C/D*
CS
RD
WR
INT
INTA
PRI
PRO
RES
CLK
TXDA
RXDA
TXCA
RXCA
RTSA
CTSA
DCDA
DTRA
WAITA
SYNCA
TXDB
RXDB
TXCB
RXCB
RTSB
CTSB
DCDB
DTRB
WAITB
DRQA
DRQB
R19 10k
R20 10k
ICF8 74HC125
ICM8 AM26LS31
ICN8 AM26LS32
IC106
IC107
IC115
IC114
JP9
R28 2.2k
R29 2.2k
R30 2.2k
R31 2.2k
C167 100p x 4
C168
C169
C170
C171 100p x 4
C172
C173
C174
R37 10 x 4
R38
R39
R41
R40 220
R42 10 x 4
R43
R45
R46
R44 220
R17 1M
R99 470
X2 4.9152M
C112 33p
C113 33p

	REF.NO	VCC	GND
UPD7201	ICL4	40	20
74HC04	ICK2	14	7
AM26LS31	ICM8	16	8
AM26LS32	ICH8	16	8
74HC74	ICK3	14	7
74HC74		14	7
74HC74	ICL5	14	7
74HC157	ICK4	16	8
74HC10	ICL7	14	7
74HC32	ICK8	14	7
74HC00	ICK7	14	7

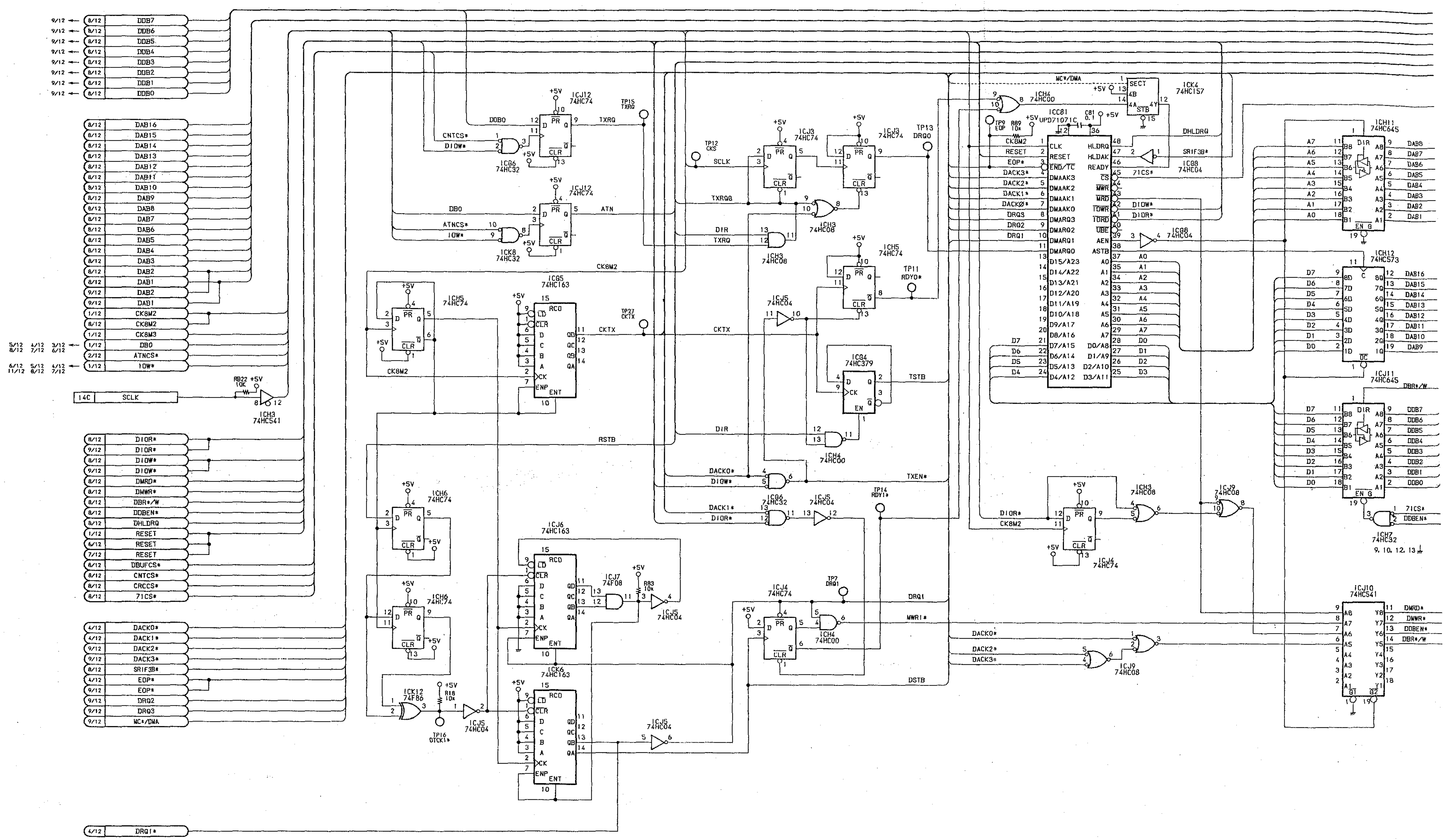

ICK3
74HC74
+5V
PR
CLR
MC*/DMA
10/12
DRQ3
10/12
DRQ2
10/12
ICL5
74HC74
ICK4
74HC04
ICK2
74HC04
ICK8
74HC32
ICL7
74HC10
SR1F39
ICL4
UPD7201
VCC
GND
D7
D6
D5
D4
D3
D2
D1
D0
B/A*
C/D*
CS
RD
WR
INT
INTA
PRI
PRO
RES
CLK
TXDA
RXDA
TXCA
RXCA
RTSA
CTSA
DCDA
DTRA
WAITA
SYNCA
TXDB
RXDB
TXCB
RXCB
RTSB
CTSB
DCDB
DTRB
WAITB
DRQA
DRQB
R19
10k
R20
10k
ICF8
74HC125
ICM8
AM26LS31
ICN8
AM26LS32
IC106
IC107
IC115
IC114
JP9
R28
2.2k
R29
2.2k
R30
2.2k
R31
2.2k
C167
100p x 4
C168
C169
C170
C171
100p x 4
C172
C173
C174
R37
10 x 4
R38
R39
R41
R40
220
R42
10 x 4
R43
R45
R46
R44
220
TTR+
37D
TTR-
37C
TRCV+
37B
TRCV-
37A
RG-MES-D
38D
RG-MES-C
38C
CTR+
38B
CTR-
38A
CRCV+
39D
CRCV-
39C
RG-MES-B
39B
RG-MES-A
39A
R17
1M
R99
470
X2
4.9152M
C113
33p
CK2.4M
7/12

	REF. NO	VCC	GND
UPD7201	ICL4	40	20
74HC04	ICK2	14	7
AM26LS31	ICM8	16	8
AM26LS32	ICH8	16	8
74HC74	ICK3	14	7
74HC74		14	7
74HC74	ICL5	14	7
74HC157	ICK4	16	8
74HC10	ICL7	14	7
74HC32	ICK8	14	7
74HC00	ICK7	14	7

Main CPU

MC-33/33A BOARD (9/12)

BOARD NO.1-627-112-11 & HIGHER
PCM-3348

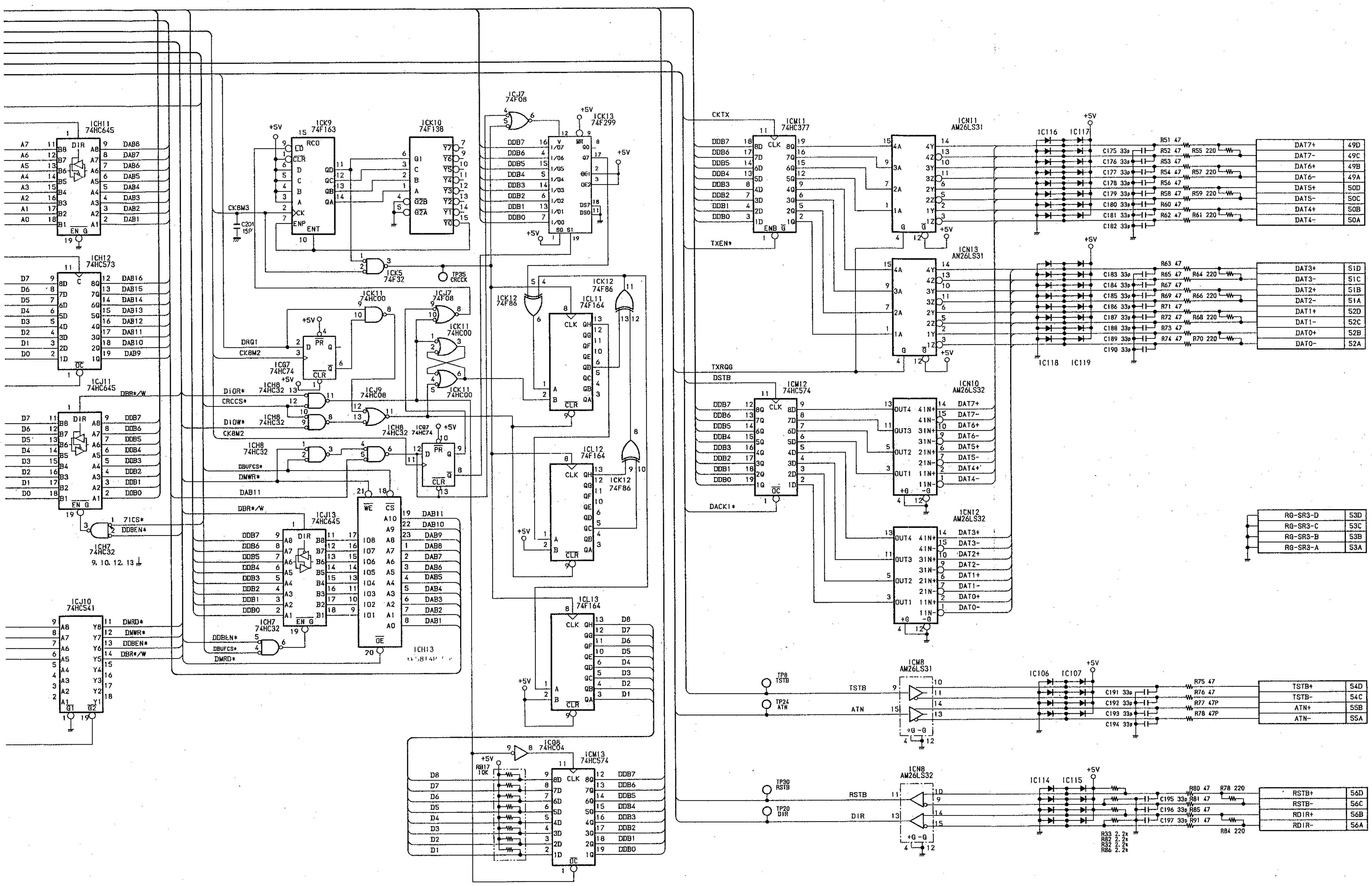

DDB7
DDB6
DDB5
DDB4
DDB3
DDB2
DDB1
DDB0
DAB16
DAB15
DAB14
DAB13
DAB12
DAB11
DAB10
DAB9
DAB8
DAB7
DAB6
DAB5
DAB4
DAB3
DAB2
DAB1
CK8M2
CK8M3
DB0
ATNCS*
IOW*
SCLK
DIOR*
DIOW*
DMRD*
DMWR*
DBR*/W
DDBEN*
DHLDRQ
RESET
DBUFCS*
CNTCS*
CRCCS*
71CS*
DACK0*
DACK1*
DACK2*
DACK3*
SRIF3B*
EOP*
DRQ2
DRQ3
MC*/DMA
DRQ1*
ICJ12 74HC74
ICG6 74HC32
ICK8 74HC32
ICH5 74HC74
ICG5 74HC163
ICH3 74HC541
ICH6 74HC74
ICJ6 74HC163
ICJ7 74F08
ICJ5 74HC04
ICK6 74HC163
ICK12 74F86
ICJ3 74HC74
ICH3 74HC08
ICH5 74HC74
ICG4 74HC379
ICH4 74HC00
ICG6 74HC32
ICJ4 74HC74
ICH4 74HC00
ICG8 74HC04
ICC81 UPD71071C
ICK4 74HC157
ICH11 74HC645
ICH12 74HC573
ICJ11 74HC645
ICH7 74HC32
ICJ9 74HC08
ICJ4 74HC74
ICJ10 74HC541
TP15 TXRQ
TP12 CKS
TP13 DRQ0
TP11 RDY0*
TP27 CKTX
TP14 RDY1*
TP7 DRQ1
TP9 EOP
TP16 DICK1*
TXRQ
ATN
CKTX
TXRQ0
DIR
TSTB
RSTB
TXEN*
DSTB
DRQ1
MWRI*
+5V
9, 10, 12, 13

	REF. NO	VCC	GND
74HC00	H4	14	7
74HC00	K11	14	7
74HC04	J5, G8	14	7
74HC08	H3	14	7
74HC08	J7, J9	14	7
74HC32	H7, G6	14	7
74HC32	H8	14	7
74HC74	H5, J12	14	7
74HC74	H6	14	7
74HC74	J3	14	7
74HC74	J4	14	7
74HC74	G7	14	7
74HC86		14	7

	REF. NO	VCC	GND
74HC157	K4	16	8
74HC163	G5	16	8
74HC163	J6	16	8
74HC163	K6	16	8
74HC377	M11	20	10
74HC379	G4	16	8
74HC541		20	10
74HC541	J10	20	10
74HC574	M12	20	10
74HC574	M13	20	10
74HC645	H11	20	10
HM6116-LP2	H13	24	12
UPD71071	G9		

	REF. NO	VCC	GND
74F32	K5	14	7
74F86	K12	14	7
74F138	K10	16	8
74F163	K9	16	8
74F164	L11	14	7
74F164	L12	14	7
74F164	L13	14	7
74F165		16	8
75121		16	8
75122		16	8
74HC573	H12	20	10
74HC645	J11, J13	20	10
74F299	K13	20	10

AM26LS31
AM26LS31
AM26LS31
AM26LS31
AM26LS32
AM26LS32
AM26LS32


ICH11 74HC645
ICH12 74HC573
ICJ11 74HC645
ICJ10 74HC541
ICH7 74HC32
ICK9 74F163
ICK10 74F138
ICJ7 74F08
ICK13 74F299
ICK5 74F32
TP35 CRCCK
ICK11 74HC00
ICK12 74F86
ICL11 74F164
ICG7 74HC74
ICH8 74HC32
ICJ9 74HC08
ICJ13 74HC645
ICH13
ICL12 74F164
ICL13 74F164
ICG8 74HC04
ICM13 74HCS74
RB17 10K
ICM11 74HC377
ICN11 AM26LS31
ICN13 AM26LS31
ICM12 74HC574
ICN10 AM26LS32
ICN12 AM26LS32
ICM8 AM26LS31
ICN8 AM26LS32
TP8 TSTB
TP24 ATN
TP30 RSTB
TP20 DIR
CKTX
TXEN*
TXRQG
DSTB
DACK1*
DAT7+
DAT7-
DAT6+
DAT6-
DAT5+
DAT5-
DAT4+
DAT4-
DAT3+
DAT3-
DAT2+
DAT2-
DAT1+
DAT1-
DAT0+
DAT0-
RG-SR3-D
RG-SR3-C
RG-SR3-B
RG-SR3-A
TSTB+
TSTB-
ATN+
ATN-
RSTB+
RSTB-
RDIR+
RDIR-
+5V

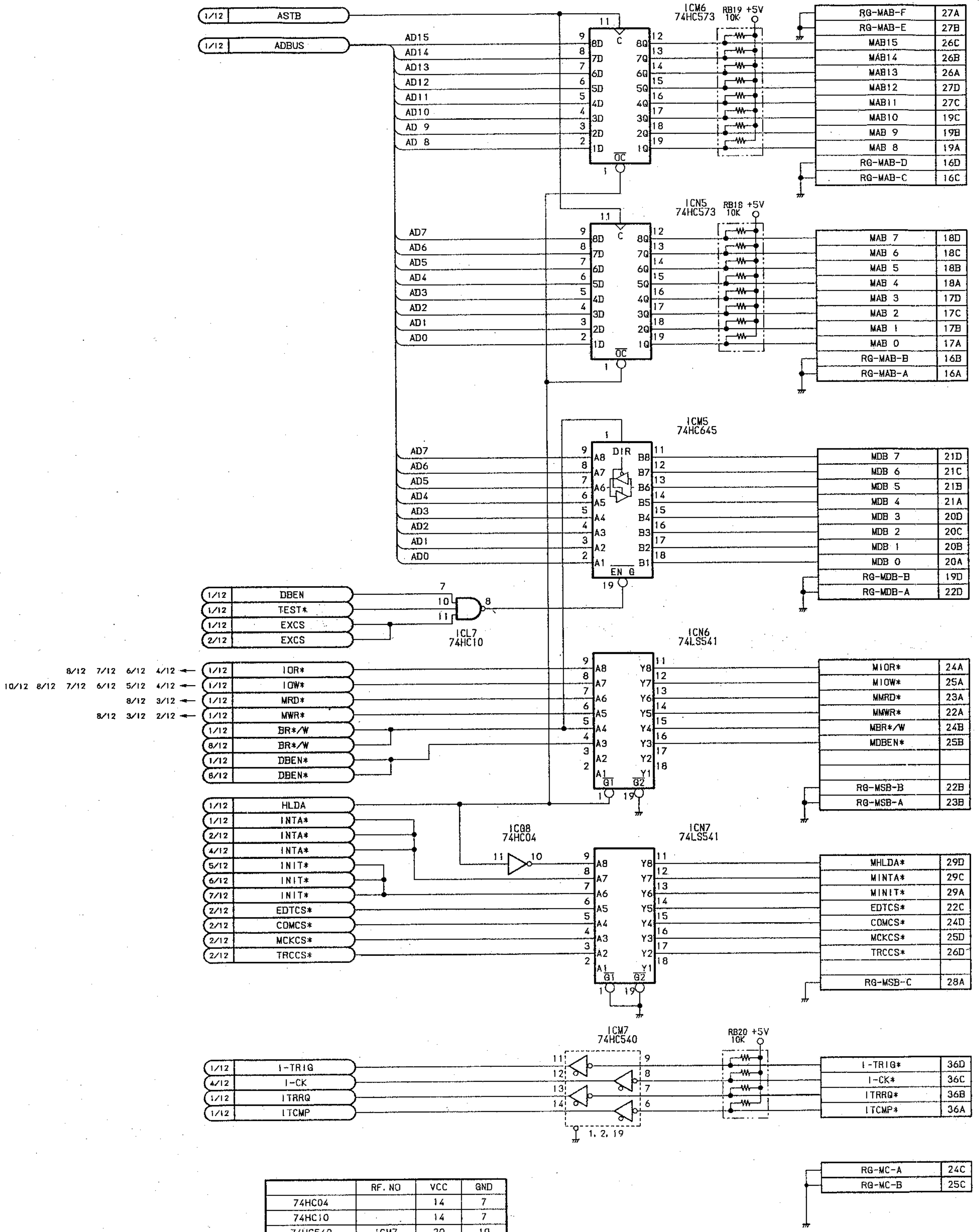
VCC	GND
14	7
14	7
16	8
16	8
14	7
14	7
14	7
16	8
16	8
16	8
20	10
20	10
20	10

	REF.NO	VCC	GND
AM26LS31	N11	16	8
AM26LS31	N13	16	8
AM26LS31	N8	16	8
AM26LS31		16	8
AM26LS32	N10	16	8
AM26LS32	N12	16	8
AM26LS32	N8	16	8

Main CPU

MC-33/33A BOARD (10/12)

BOARD NO.1-627-112-11 & HIGHER
PCM-3348

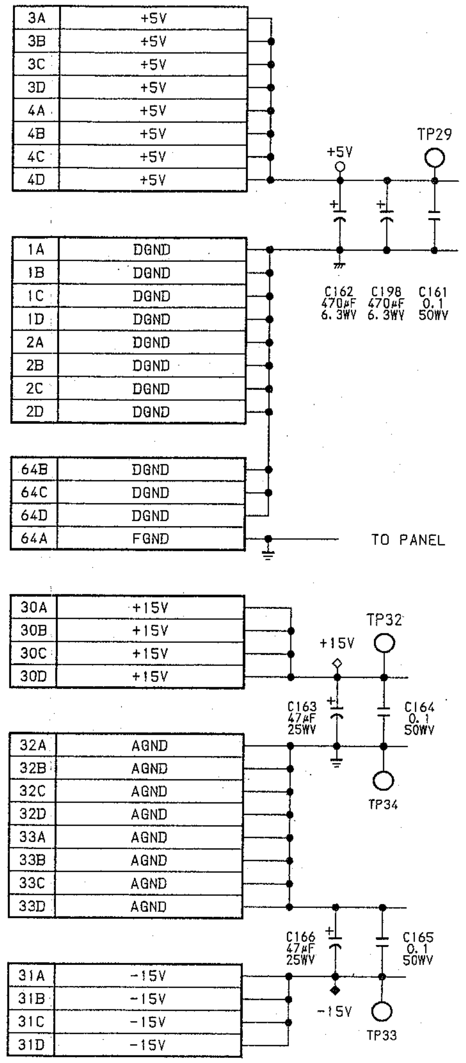

1/12 ASTB
1/12 ADBUS
AD15
AD14
AD13
AD12
AD11
AD10
AD 9
AD 8
ICM6
74HC573
RB19 10K
+5V
RG-MAB-F 27A
RG-MAB-E 27B
MAB15 26C
MAB14 26B
MAB13 26A
MAB12 27D
MAB11 27C
MAB10 19C
MAB 9 19B
MAB 8 19A
RG-MAB-D 16D
RG-MAB-C 16C
AD7
AD6
AD5
AD4
AD3
AD2
AD1
AD0
ICN5
74HC573
RB18 10K
+5V
MAB 7 18D
MAB 6 18C
MAB 5 18B
MAB 4 18A
MAB 3 17D
MAB 2 17C
MAB 1 17B
MAB 0 17A
RG-MAB-B 16B
RG-MAB-A 16A
ICM5
74HC645
DIR
EN G
MDB 7 21D
MDB 6 21C
MDB 5 21B
MDB 4 21A
MDB 3 20D
MDB 2 20C
MDB 1 20B
MDB 0 20A
RG-MDB-B 19D
RG-MDB-A 22D
1/12 DBEN
1/12 TEST*
1/12 EXCS
2/12 EXCS
ICL7
74HC10
8/12 7/12 6/12 4/12
10/12 8/12 7/12 6/12 5/12 4/12
8/12 3/12
8/12 3/12 2/12
1/12 IOR*
1/12 IOW*
1/12 MRD*
1/12 MWR*
1/12 BR*/W
8/12 BR*/W
1/12 DBEN*
8/12 DBEN*
ICN6
74LS541
MIOR* 24A
MIOW* 25A
MMRD* 23A
MMWR* 22A
MBR*/W 24B
MDBEN* 25B
RG-MSB-B 22B
RG-MSB-A 23B
1/12 HLDA
1/12 INTA*
2/12 INTA*
4/12 INTA*
5/12 INIT*
6/12 INIT*
7/12 INIT*
2/12 EDTCS*
2/12 COMCS*
2/12 MCKCS*
2/12 TRCCS*
ICG8
74HC04
ICN7
74LS541
MHLDA* 29D
MINTA* 29C
MINIT* 29A
EDTCS* 22C
COMCS* 24D
MCKCS* 25D
TRCCS* 26D
RG-MSB-C 28A
1/12 I-TRIG
4/12 I-CK
1/12 ITRRQ
1/12 ITCMP
ICM7
74HC540
1, 2, 19
RB20 10K
+5V
I-TRIG* 36D
I-CK* 36C
ITRRQ* 36B
ITCMP* 36A
RG-MC-A 24C
RG-MC-B 25C

	RF. NO	VCC	GND
74HC04		14	7
74HC10		14	7
74HC540	ICM7	20	10
74HC540		20	10
74HC541	ICN7	20	10
74HC541	ICN6	20	10
74HC541		20	10
74HC573	ICM6	20	10
74HC573	ICN5	20	10
74HC645	ICM5	20	10

Main CPU

MC-33/33A BOARD (11/12)

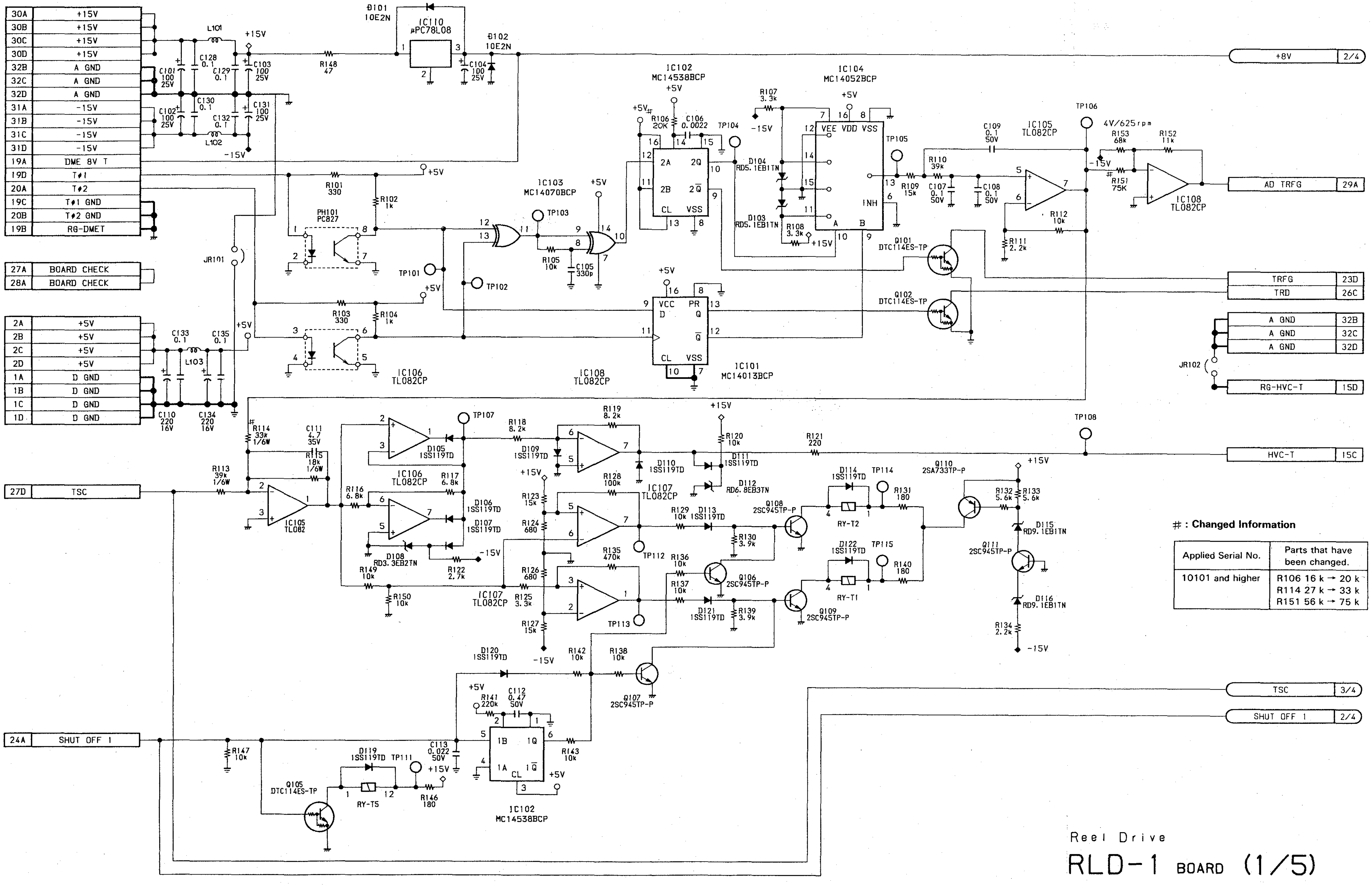
BOARD NO. 1-627-112-11 & HIGHER
PCM-3348


3A +5V
3B +5V
3C +5V
3D +5V
4A +5V
4B +5V
4C +5V
4D +5V
+5V
TP29
1A DGND
1B DGND
1C DGND
1D DGND
2A DGND
2B DGND
2C DGND
2D DGND
C162 470μF 6.3WV
C198 470μF 6.3WV
C161 0.1 50WV
64B DGND
64C DGND
64D DGND
64A FGND
TO PANEL
30A +15V
30B +15V
30C +15V
30D +15V
+15V
TP32
C163 47μF 25WV
C164 0.1 50WV
32A AGND
32B AGND
32C AGND
32D AGND
33A AGND
33B AGND
33C AGND
33D AGND
TP34
C166 47μF 25WV
C165 0.1 50WV
31A -15V
31B -15V
31C -15V
31D -15V
-15V
TP33

Main CPU

MC-33/33A BOARD (12/12)

BOARD NO. 1-627-112-11 & HIGHER
PCM-3348


30A +15V
30B +15V
30C +15V
30D +15V
32B A GND
32C A GND
32D A GND
31A -15V
31B -15V
31C -15V
31D -15V
19A DME 8V T
19D T#1
20A T#2
19C T#1 GND
20B T#2 GND
19B RG-DMET
27A BOARD CHECK
28A BOARD CHECK
2A +5V
2B +5V
2C +5V
2D +5V
1A D GND
1B D GND
1C D GND
1D D GND
27D TSC
24A SHUT OFF 1
D101 10E2N
IC110 μPC78L08
D102 10E2N
L101
L102
L103
R148 47
C101 100 25V
C102 100 25V
C103 100 25V
C104 100 25V
C128 0.1
C129 0.1
C130 0.1
C131 100 25V
C132 0.1
C133 0.1
C135 0.1
C110 220 16V
C134 220 16V
JR101
PH101 PC827
R101 330
R102 1k
R103 330
R104 1k
IC103 MC14070BCP
TP101
TP102
TP103
R105 10k
C105 330p
IC102 MC14538BCP
R106 20K
C106 0.0022
TP104
IC104 MC14052BCP
R107 3.3k
D104 RD5.1EB1TN
D103 RD5.1EB1TN
R108 3.3k
TP105
IC101 MC14013BCP
IC106 TL082CP
IC108 TL082CP
C109 0.1 50V
IC105 TL082CP
TP106
4V/625rpm
R153 68k
R152 11k
R151 75K
R110 39k
R109 15k
C107 0.1 50V
C108 0.1 50V
R112 10k
R111 2.2k
Q101 DTC114ES-TP
Q102 DTC114ES-TP
+8V 2/4
AD TRFG 29A
TRFG 23D
TRD 26C
A GND 32B
A GND 32C
A GND 32D
JR102
RG-HVC-T 15D
HVC-T 15C
TSC 3/4
SHUT OFF 1 2/4
R114 33k 1/6W
C111 4.7 35V
R115 18k 1/6W
R113 39k 1/6W
IC105 TL082
TP107
D105 1SS119TD
IC106 TL082CP
R116 6.8k
R117 6.8k
D106 1SS119TD
D107 1SS119TD
D108 RD3.3EB2TN
R149 10k
R122 2.7k
R150 10k
R118 8.2k
R119 8.2k
D109 1SS119TD
R120 10k
R121 220
TP108
D110 1SS119TD
D111 1SS119TD
D112 RD6.8EB3TN
IC107 TL082CP
R123 15k
R124 680
R128 100k
R126 680
R125 3.3k
R127 15k
R135 470k
TP112
TP113
R129 10k
D113 1SS119TD
R130 3.9k
R136 10k
R137 10k
D121 1SS119TD
R139 3.9k
Q106 2SC945TP-P
Q108 2SC945TP-P
Q109 2SC945TP-P
D114 1SS119TD
TP114
R131 180
RY-T2
D122 1SS119TD
TP115
R140 180
RY-T1
Q110 2SA733TP-P
R132 5.6k
R133 5.6k
D115 RD9.1EB1TN
Q111 2SC945TP-P
D116 RD9.1EB1TN
R134 2.2k
D120 1SS119TD
R142 10k
R138 10k
Q107 2SC945TP-P
R141 220k
C112 0.47 50V
C113 0.022 50V
R143 10k
IC102 MC14538BCP
R147 10k
D119 1SS119TD
TP111
RY-T5
R146 180
Q105 DTC114ES-TP
+5V
+15V
-15V

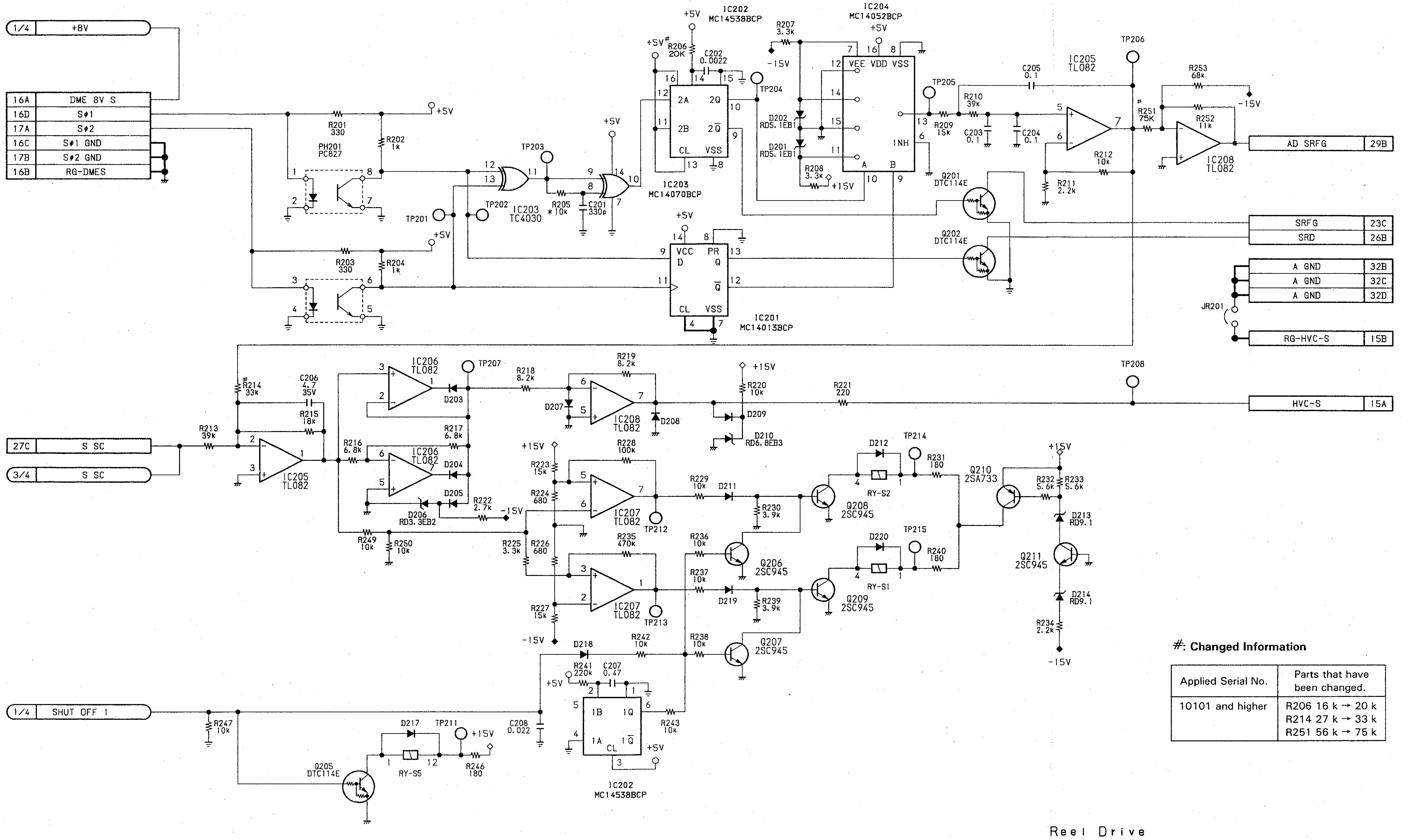
: Changed Information

Applied Serial No.	Parts that have been changed.
10101 and higher	R106 16 k → 20 k R114 27 k → 33 k R151 56 k → 75 k

Reel Drive

RLD-1 BOARD (1/5)

BOARD NO.1-627-098-11 & HIGHER
PCM-3348


1/4 +8V
16A DME 8V S
16D S#1
17A S#2
16C S#1 GND
17B S#2 GND
16B RG-DMES
R201 330
R202 1k
PH201 PC827
R203 330
R204 1k
+5V
TP201
TP202
TP203
IC203 TC4030
R205 *10k
C201 330p
+5V# R206 20K
C202 0.0022
IC202 MC14538BCP
TP204
IC203 MC14070BCP
R207 3.3k
-15V
D202 RD5.1EB1
D201 RD5.1EB1
R208 3.3k
+15V
IC204 MC14052BCP
VEE VDD VSS
INH
A B
TP205
R210 39k
R209 15k
C203 0.1
C204 0.1
C205 0.1
IC205 TL082
TP206
R212 10k
R211 2.2k
R251 # 75K
R253 68k
R252 11k
IC208 TL082
AD SRFG 29B
Q201 DTC114E
Q202 DTC114E
SRFG 23C
SRD 26B
A GND 32B
A GND 32C
A GND 32D
JR201
RG-HVC-S 15B
IC201 MC14013BCP
VCC PR D Q CL VSS
R214 # 33k
C206 4.7 35V
R215 18k
R213 39k
27C S SC
3/4 S SC
IC205 TL082
IC206 TL082
TP207
D203
R216 6.8k
R217 6.8k
D204
D205
D206 RD3.3EB2
R222 2.7k
-15V
R249 10k
R250 10k
R218 8.2k
R219 8.2k
D207
IC208 TL082
D208
+15V
R220 10k
D209
D210 RD6.8EB3
R221 220
TP208
HVC-S 15A
R223 15k
R224 680
R228 100k
IC207 TL082
TP212
R225 3.3k
R226 680
R235 470k
IC207 TL082
TP213
R227 15k
R229 10k
D211
R230 3.9k
R236 10k
R237 10k
D219
R239 3.9k
R238 10k
R242 10k
D218
Q206 2SC945
Q207 2SC945
Q208 2SC945
Q209 2SC945
D212
TP214
RY-S2
R231 180
D220
TP215
RY-S1
R240 180
Q210 2SA733
R232 5.6k
R233 5.6k
D213 RD9.1
Q211 2SC945
D214 RD9.1
R234 2.2k
-15V
1/4 SHUT OFF 1
R247 10k
Q205 DTC114E
D217
TP211
RY-S5
R246 180
C208 0.022
R241 220k
C207 0.47
1B 1Q 1A CL 1Q
R243 10k
IC202 MC14538BCP

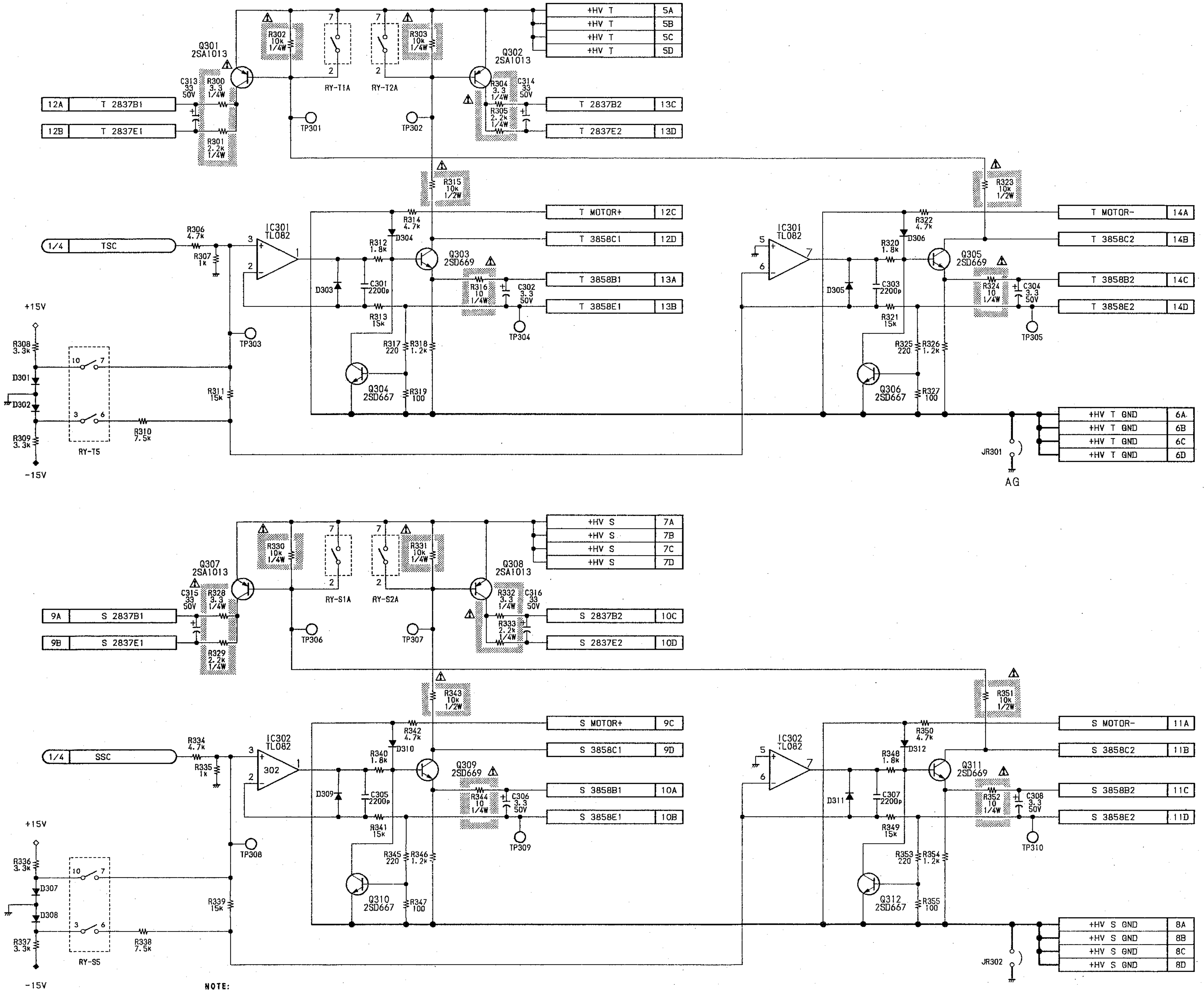
#: Changed Information

Applied Serial No.	Parts that have been changed.
10101 and higher	R206 16 k → 20 k R214 27 k → 33 k R251 56 k → 75 k

Reel Drive

RLD-1 BOARD (2/5)

BOARD NO.1-627-098-11 & HIGHER
PCM-3348


+HV T 5A
+HV T 5B
+HV T 5C
+HV T 5D
Q301 2SA1013
Q302 2SA1013
R302 10k 1/4W
R303 10k 1/4W
RY-T1A
RY-T2A
C313 33 50V
R300 3.3 1/4W
R301 2.2k 1/4W
R304 3.3 1/4W
C314 33 50V
R305 2.2k 1/4W
12A T 2837B1
12B T 2837E1
T 2837B2 13C
T 2837E2 13D
TP301
TP302
R315 10k 1/2W
R323 10k 1/2W
T MOTOR+ 12C
T 3858C1 12D
T 3858B1 13A
T 3858E1 13B
T MOTOR- 14A
T 3858C2 14B
T 3858B2 14C
T 3858E2 14D
1/4 TSC
R306 4.7k
R307 1k
IC301 TL082
R314 4.7k
R312 1.8k
D304
Q303 2SD669
D303
C301 2200p
R316 10 1/4W
C302 3.3 50V
R313 15k
TP304
R317 220
R318 1.2k
Q304 2SD667
R319 100
R322 4.7k
R320 1.8k
D306
Q305 2SD669
D305
C303 2200p
R324 10 1/4W
C304 3.3 50V
R321 15k
TP305
R325 220
R326 1.2k
Q306 2SD667
R327 100
+15V
R308 3.3k
D301
D302
R309 3.3k
-15V
RY-T5
R310 7.5k
R311 15k
TP303
+HV T GND 6A
+HV T GND 6B
+HV T GND 6C
+HV T GND 6D
JR301
AG
+HV S 7A
+HV S 7B
+HV S 7C
+HV S 7D
Q307 2SA1013
Q308 2SA1013
R330 10k 1/4W
R331 10k 1/4W
RY-S1A
RY-S2A
C315 33 50V
R328 3.3 1/4W
R329 2.2k 1/4W
R332 3.3 1/4W
C316 33 50V
R333 2.2k 1/4W
9A S 2837B1
9B S 2837E1
S 2837B2 10C
S 2837E2 10D
TP306
TP307
R343 10k 1/2W
R351 10k 1/2W
S MOTOR+ 9C
S 3858C1 9D
S 3858B1 10A
S 3858E1 10B
S MOTOR- 11A
S 3858C2 11B
S 3858B2 11C
S 3858E2 11D
1/4 SSC
R334 4.7k
R335 1k
IC302 TL082
R342 4.7k
R340 1.8k
D310
Q309 2SD669
D309
C305 2200p
R344 10 1/4W
C306 3.3 50V
R341 15k
TP309
R345 220
R346 1.2k
Q310 2SD667
R347 100
R350 4.7k
R348 1.8k
D312
Q311 2SD669
D311
C307 2200p
R352 10 1/4W
C308 3.3 50V
R349 15k
TP310
R353 220
R354 1.2k
Q312 2SD667
R355 100
R336 3.3k
D307
D308
R337 3.3k
RY-S5
R338 7.5k
R339 15k
TP308
+HV S GND 8A
+HV S GND 8B
+HV S GND 8C
+HV S GND 8D
JR302

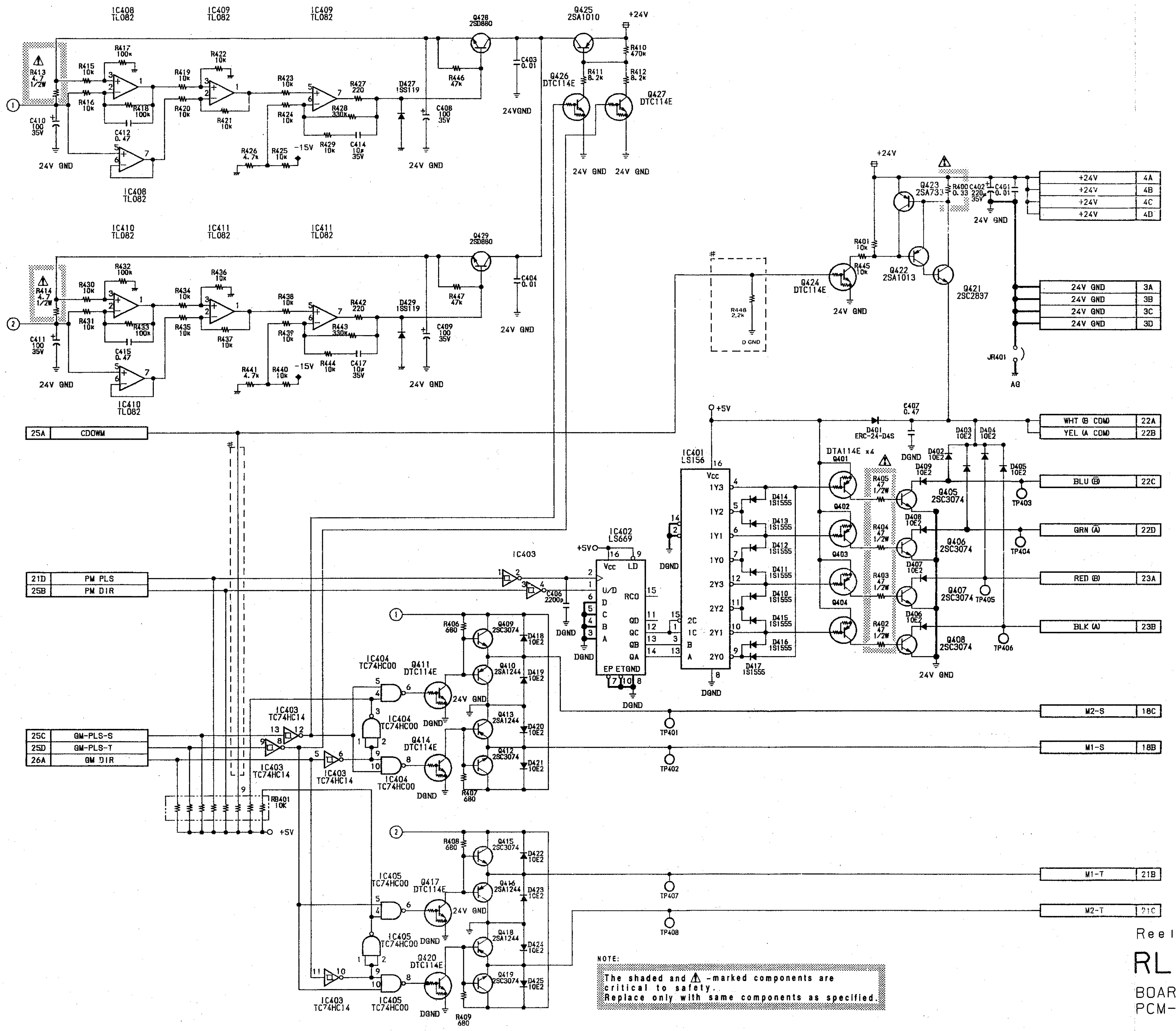
NOTE:

The shaded and ⚠ -marked components are critical to safety.
Replace only with same components as specified.

Reel Drive

RLD-1 BOARD (3/5)

BOARD NO.1-627-098-11 & HIGHER
PCM-3348

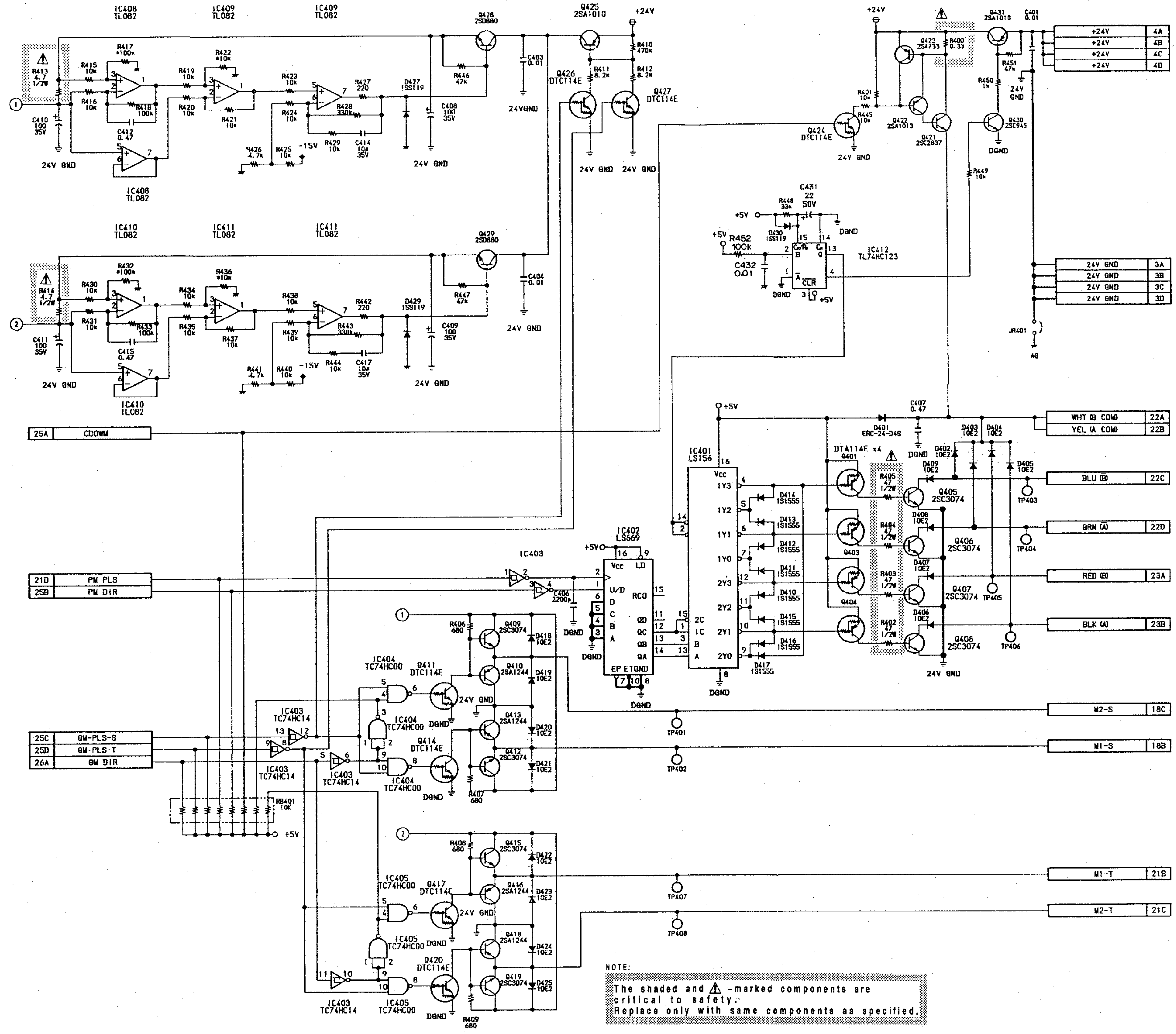

IC408 TL082
IC409 TL082
IC410 TL082
IC411 TL082
Q428 2SD880
Q429 2SD880
Q425 2SA1010
Q426 DTC114E
Q427 DTC114E
+24V
24V GND
24VGND
R413 4.7 1/2W
R414 4.7 1/2W
D427 1SS119
D429 1SS119
-15V
Q423 2SA733
Q422 2SA1013
Q421 2SC2837
Q424 DTC114E
R448 2.2k
D GND
JR401
AG
+24V 4A
+24V 4B
+24V 4C
+24V 4D
24V GND 3A
24V GND 3B
24V GND 3C
24V GND 3D
25A CDOWM
+5V
D401 ERC-24-D4S
C407 0.47
WHT (B COM) 22A
YEL (A COM) 22B
BLU (B) 22C
GRN (A) 22D
RED (B) 23A
BLK (A) 23B
IC401 LS156
IC402 LS669
IC403
DTA114E x4
Q401
Q402
Q403
Q404
Q405 2SC3074
Q406 2SC3074
Q407 2SC3074
Q408 2SC3074
TP403
TP404
TP405
TP406
DGND
21D PM PLS
25B PM DIR
25C GM-PLS-S
25D GM-PLS-T
26A GM DIR
IC403 TC74HC14
IC404 TC74HC00
IC405 TC74HC00
Q409 2SC3074
Q410 2SA1244
Q411 DTC114E
Q412 2SC3074
Q413 2SA1244
Q414 DTC114E
Q415 2SC3074
Q416 2SA1244
Q417 DTC114E
Q418 2SA1244
Q419 2SC3074
Q420 DTC114E
RB401 10k
M2-S 18C
M1-S 18B
M1-T 21B
M2-T 21C
TP401
TP402
TP407
TP408

NOTE:
The shaded and ⚠ -marked components are critical to safety.
Replace only with same components as specified.

Reel Drive

RLD-1 BOARD (4/5)

BOARD NO.1-627-098-11,12,13
PCM-3348


IC408 TL082
IC409 TL082
IC410 TL082
IC411 TL082
Q428 2SD880
Q429 2SD880
Q425 2SA1010
+24V
R410 470k
R411 8.2k
R412 8.2k
Q426 DTC114E
Q427 DTC114E
R413 4.7 1/2W
R414 4.7 1/2W
R415 10k
R416 10k
R417 *100k
R418 100k
R419 10k
R420 10k
R421 10k
R422 *10k
R423 10k
R424 10k
R425 10k
R426 4.7k
R427 220
R428 330k
R429 10k
R446 47k
R447 47k
D427 1SS119
D429 1SS119
C403 0.01
C404 0.01
C408 100 35V
C409 100 35V
C410 100 35V
C411 100 35V
C412 0.47
C415 0.47
C414 10μ 35V
C417 10μ 35V
-15V
24V GND
24VGND
R430 10k
R431 10k
R432 *100k
R433 100k
R434 10k
R435 10k
R436 *10k
R437 10k
R438 10k
R439 10k
R440 10k
R441 4.7k
R442 220
R443 330k
R444 10k
25A CDOWM
21D PM PLS
25B PM DIR
25C GM-PLS-S
25D GM-PLS-T
26A GM DIR
RB401 10K
+5V
IC403 TC74HC14
IC404 TC74HC00
IC405 TC74HC00
C406 2200p
IC402 LS669
IC401 LS156
Vcc
LD
U/D
RCO
QD
QC
QB
QA
EP ET GND
1Y3
1Y2
1Y1
1Y0
2Y3
2Y2
2Y1
2Y0
2C
1C
B
A
DGND
D410 1SS119
D411 1S1555
D412 1S1555
D413 1S1555
D414 1S1555
D415 1S1555
D416 1S1555
D417 1S1555
DTA114E x4
Q401
Q403
Q404
R402 47 1/2W
R403 47 1/2W
R404 47 1/2W
R405 47 1/2W
Q405 2SC3074
Q406 2SC3074
Q407 2SC3074
Q408 2SC3074
D401 ERC-24-04S
D402 10E2
D403 10E2
D404 10E2
D405 10E2
D406 10E2
D407 10E2
D408 10E2
D409 10E2
C407 0.47
TP403
TP404
TP405
TP406
WHT (B) COM 22A
YEL (A) COM 22B
BLU (B) 22C
GRN (A) 22D
RED (B) 23A
BLK (A) 23B
M2-S 18C
M1-S 18B
M1-T 21B
M2-T 21C
TP401
TP402
TP407
TP408
R406 680
R407 680
R408 680
R409 680
Q409 2SC3074
Q410 2SA1244
Q411 DTC114E
Q413 2SA1244
Q414 DTC114E
Q412 2SC3074
Q415 2SC3074
Q416 2SA1244
Q417 DTC114E
Q418 2SA1244
Q419 2SC3074
Q420 DTC114E
D418 10E2
D419 10E2
D420 10E2
D421 10E2
D422 10E2
D423 10E2
D424 10E2
D425 10E2
IC412 TL74HC123
R452 100k
C432 0.01
C431 22 50V
R448 33k
D430 1SS119
CLR
Q424 DTC114E
R401 10k
R445 10k
Q422 2SA1013
Q423 2SA733
Q421 2SC2837
R400 0.33
Q431 2SA1010
C401 0.01
R451 47k
R450 1k
Q430 2SC945
R449 10k
+24V 4A
+24V 4B
+24V 4C
+24V 4D
24V GND 3A
24V GND 3B
24V GND 3C
24V GND 3D
JR401
AB

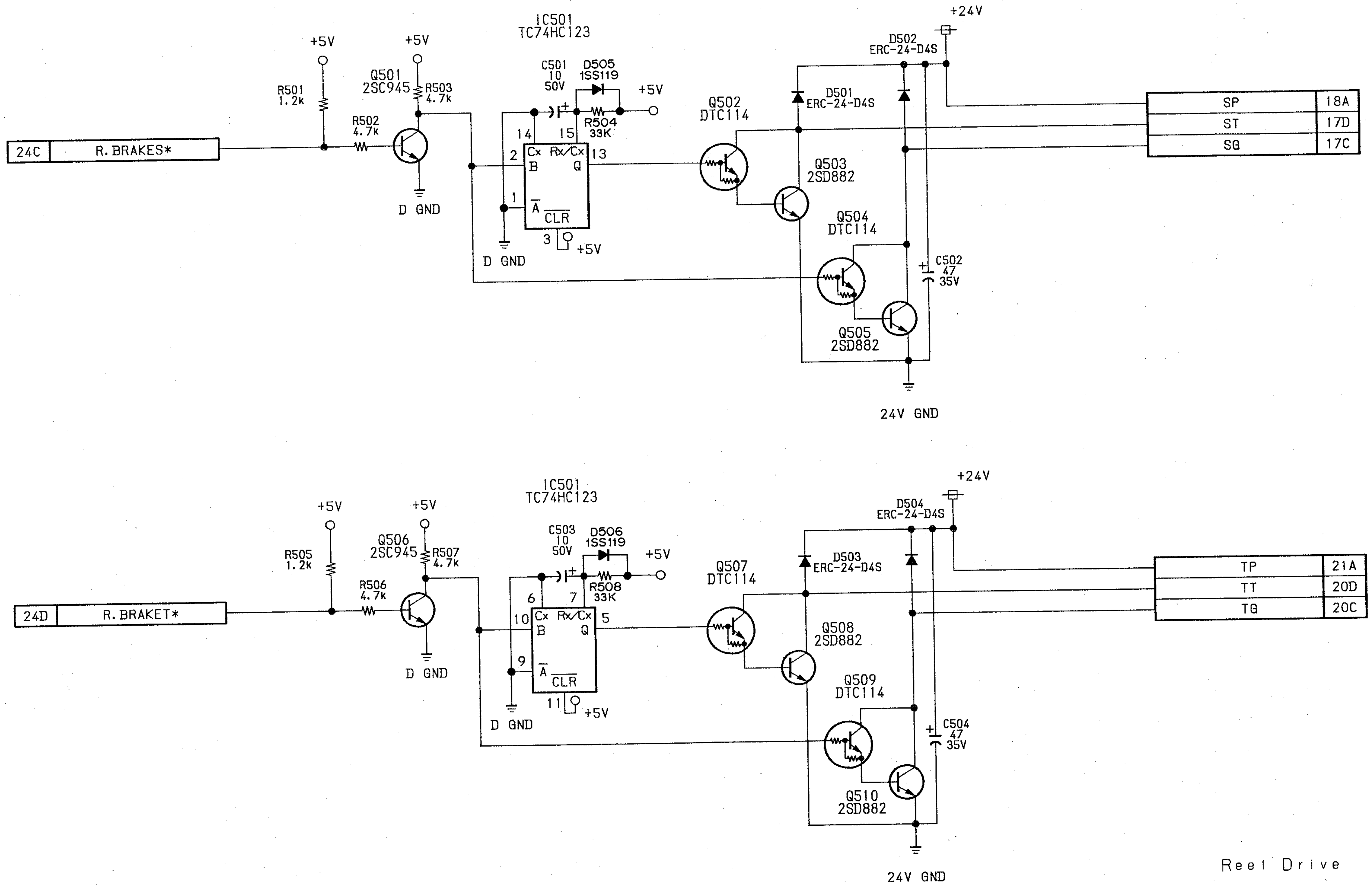
NOTE:

The shaded and ⚠ -marked components are critical to safety.
Replace only with same components as specified.

Reel Drive

RLD-1 BOARD (4/5)

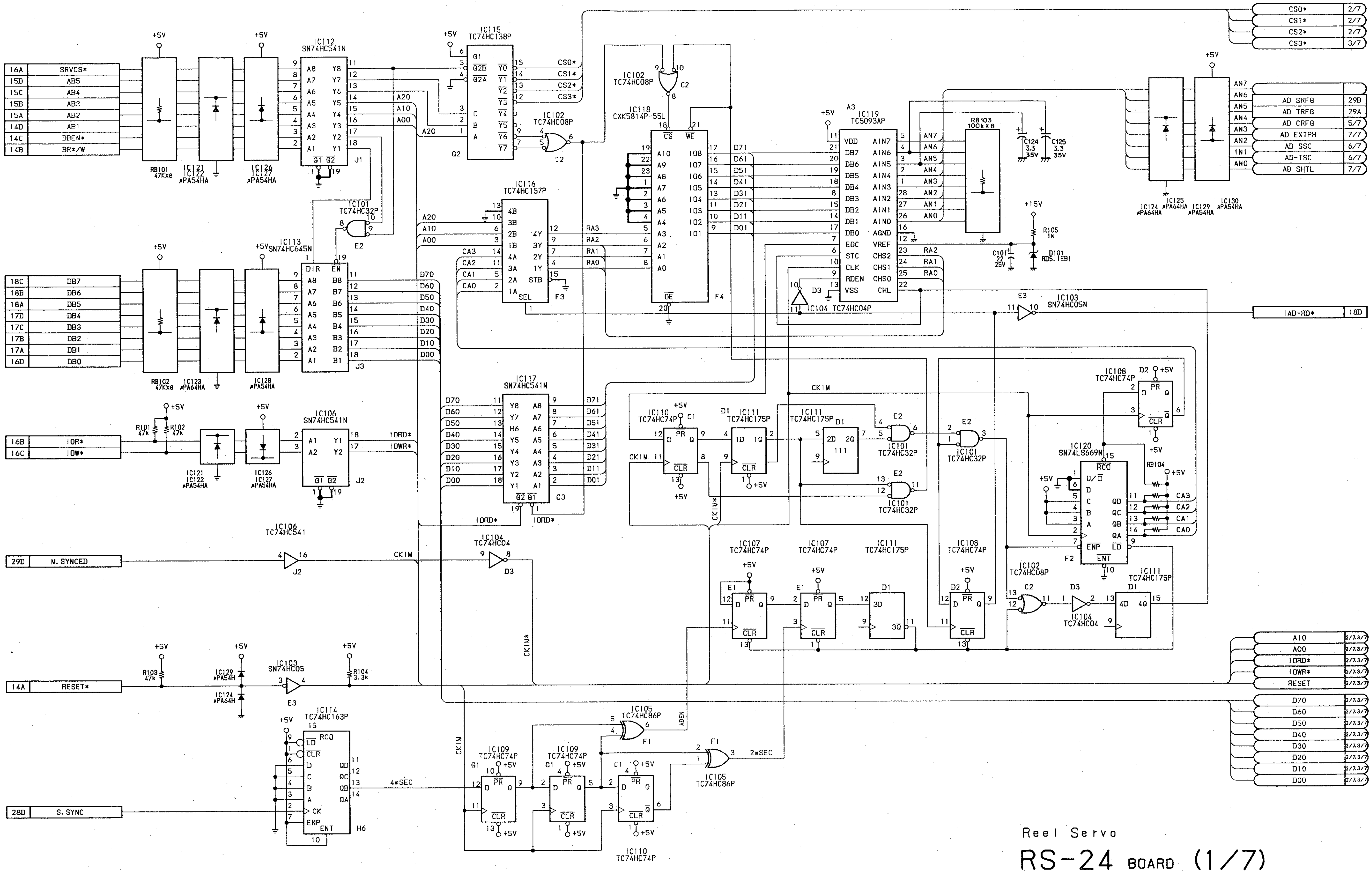
BOARD NO. 1-627-098-14
PCM-3348


24C
R.BRAKES*
+5V
R501
1.2k
R502
4.7k
+5V
Q501
2SC945
R503
4.7k
D GND
IC501
TC74HC123
C501
10
50V
D505
1SS119
R504
33K
+5V
14
15
2
1
3
13
Cx
Rx/Cx
B
Q
A
CLR
+5V
D GND
Q502
DTC114
Q503
2SD882
Q504
DTC114
Q505
2SD882
+24V
D502
ERC-24-D4S
D501
ERC-24-D4S
C502
47
35V
24V GND
SP
ST
SG
18A
17D
17C
24D
R.BRAKET*
+5V
R505
1.2k
R506
4.7k
+5V
Q506
2SC945
R507
4.7k
D GND
IC501
TC74HC123
C503
10
50V
D506
1SS119
R508
33K
+5V
6
7
10
9
11
5
Cx
Rx/Cx
B
Q
A
CLR
+5V
D GND
Q507
DTC114
Q508
2SD882
Q509
DTC114
Q510
2SD882
+24V
D504
ERC-24-D4S
D503
ERC-24-D4S
C504
47
35V
24V GND
TP
TT
TG
21A
20D
20C

Reel Drive

RLD-1 BOARD (5/5)

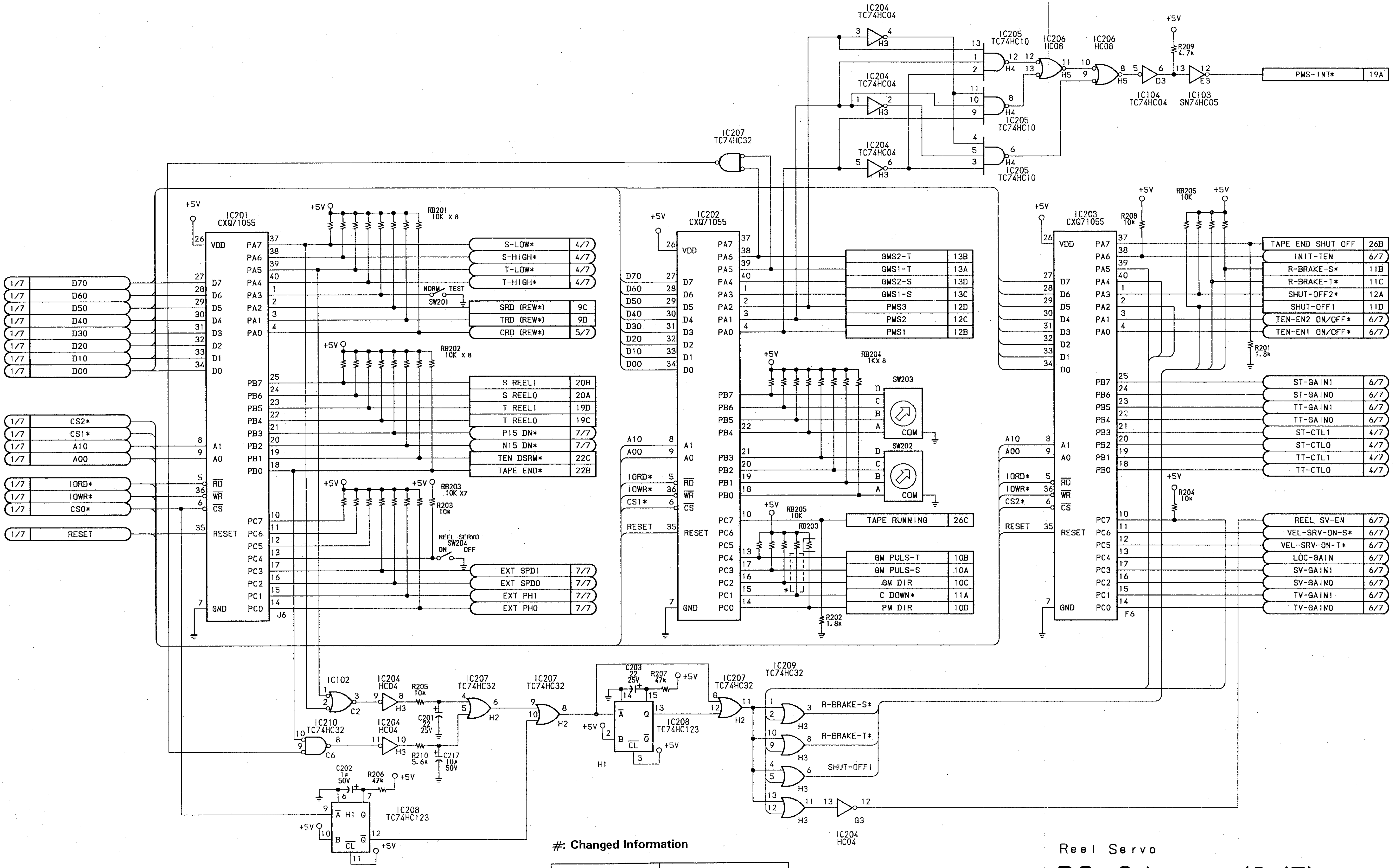
BOARD NO.1-627-098-11 & HIGHER
PCM-3348


16A SRVCS*
15D AB5
15C AB4
15B AB3
15A AB2
14D AB1
14C DPEN*
14B BR*/W
RB101 47Kx8
IC121 IC122 #PA54HA
IC126 IC127 #PA54HA
IC112 SN74HC541N
IC115 TC74HC138P
CS0* CS1* CS2* CS3*
IC102 TC74HC08P
IC118 CXK5814P-55L
IC119 TC5093AP
RB103 100k×8
C124 3.3 35V
C125 3.3 35V
IC124 #PA64HA IC125 #PA64HA IC129 #PA54HA IC130 #PA54HA
AD SRFG 29B
AD TRFG 29A
AD CRFG 5/7
AD EXTPH 7/7
AD SSC 6/7
AD-TSC 6/7
AD SHTL 7/7
CS0* 2/7
CS1* 2/7
CS2* 2/7
CS3* 3/7
IC101 TC74HC32P
IC116 TC74HC157P
R105 1k
C101 22 25V
D101 RD5.1EB1
IC103 SN74HC05N
IAD-RD* 18D
18C DB7
18B DB6
18A DB5
17D DB4
17C DB3
17B DB2
17A DB1
16D DB0
RB102 47Kx8
IC123 #PA64HA
IC128 #PA54HA
IC113 SN74HC645N
IC104 TC74HC04P
IC117 SN74HC541N
16B IOR*
16C IOW*
R101 47k
R102 47k
IC106 SN74HC541N
IORD* IOWR*
IC110 TC74HC74P
IC111 TC74HC175P
IC108 TC74HC74P
IC120 SN74LS669N
RB104
CKIM
29D M. SYNCED
IC106 TC74HC541
IC107 TC74HC74P
IC102 TC74HC08P
14A RESET*
R103 47k
IC129 #PA54H
IC124 #PA64H
R104 3.3k
IC114 TC74HC163P
4*SEC
2*SEC
IC105 TC74HC86P
IC109 TC74HC74P
ADEN
28D S. SYNC
A10 A00 IORD* IOWR* RESET
D70 D60 D50 D40 D30 D20 D10 D00
2/3,3/7

Reel Servo

RS-24 BOARD (1/7)

BOARD NO.1-627-097-11 & HIGHER
PCM-3348


IC201 CXQ71055
IC202 CXQ71055
IC203 CXQ71055
IC204 TC74HC04
IC205 TC74HC10
IC206 HC08
IC207 TC74HC32
IC104 TC74HC04
IC103 SN74HC05
IC102
IC208 TC74HC123
IC209 TC74HC32
IC210 TC74HC32
PMS-INT* 19A
D70 D60 D50 D40 D30 D20 D10 D00
CS2* CS1* A10 A00
IORD* IOWR* CS0*
RESET
S-LOW* 4/7
S-HIGH* 4/7
T-LOW* 4/7
T-HIGH* 4/7
SRD (REW*) 9C
TRD (REW*) 9D
CRD (REW*) 5/7
S REEL1 20B
S REEL0 20A
T REEL1 19D
T REEL0 19C
P15 DN* 7/7
N15 DN* 7/7
TEN DSRM* 22C
TAPE END* 22B
EXT SPD1 7/7
EXT SPD0 7/7
EXT PH1 7/7
EXT PH0 7/7
GMS2-T 13B
GMS1-T 13A
GMS2-S 13D
GMS1-S 13C
PMS3 12D
PMS2 12C
PMS1 12B
TAPE RUNNING 26C
GM PULS-T 10B
GM PULS-S 10A
GM DIR 10C
C DOWN* 11A
PM DIR 10D
TAPE END SHUT OFF 26B
INIT-TEN 6/7
R-BRAKE-S* 11B
R-BRAKE-T* 11C
SHUT-OFF2* 12A
SHUT-OFF1 11D
TEN-EN2 ON/OFF* 6/7
TEN-EN1 ON/OFF* 6/7
ST-GAIN1 6/7
ST-GAIN0 6/7
TT-GAIN1 6/7
TT-GAIN0 6/7
ST-CTL1 4/7
ST-CTL0 4/7
TT-CTL1 4/7
TT-CTL0 4/7
REEL SV-EN 6/7
VEL-SRV-ON-S* 6/7
VEL-SRV-ON-T* 6/7
LOC-GAIN 6/7
SV-GAIN1 6/7
SV-GAIN0 6/7
TV-GAIN1 6/7
TV-GAIN0 6/7
RB201 10K x 8
RB202 10K x 8
RB203 10K X7
RB204 1KX 8
RB205 10K
R201 1.8K
R202 1.8K
R203 10K
R204 10K
R205 10K
R206 47K
R207 47K
R208 10K
R209 4.7K
R210 5.6K
C201 22 25V
C202 1μ 50V
C203 22 25V
C217 10μ 50V
SW201 NORM TEST
SW202
SW203
SW204 REEL SERVO ON OFF
R-BRAKE-S*
R-BRAKE-T*
SHUT-OFF1
+5V
J6
F6

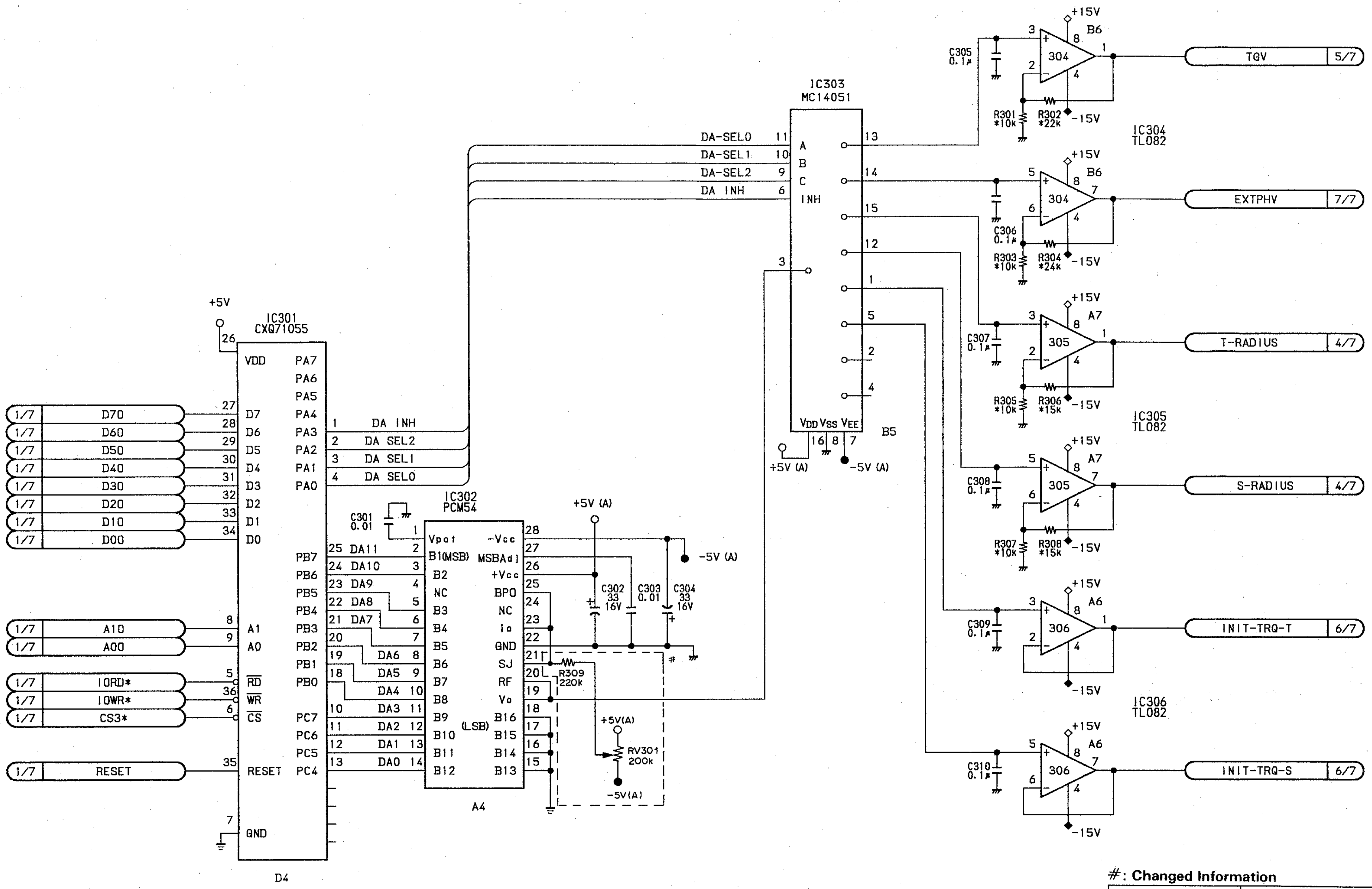
#: Changed Information

Applied Serial No.	Jumpers that have been added.
10101 to 10600	RB205-3 — IC202-15

Reel Servo

RS-24 BOARD (2/7)

BOARD NO. 1-627-098-11 & HIGHER
PCM-3348


IC301
CXQ71055
+5V
26 VDD
27 D7
28 D6
29 D5
30 D4
31 D3
32 D2
33 D1
34 D0
8 A1
9 A0
5 RD
36 WR
6 CS
35 RESET
7 GND
D4
PA7
PA6
PA5
PA4
PA3
PA2
PA1
PA0
PB7
PB6
PB5
PB4
PB3
PB2
PB1
PB0
PC7
PC6
PC5
PC4
1/7 D70
1/7 D60
1/7 D50
1/7 D40
1/7 D30
1/7 D20
1/7 D10
1/7 D00
1/7 A10
1/7 A00
1/7 IORD*
1/7 IOWR*
1/7 CS3*
1/7 RESET
1 DA INH
2 DA SEL2
3 DA SEL1
4 DA SEL0
25 DA11
24 DA10
23 DA9
22 DA8
21 DA7
20
19 DA6
18 DA5
DA4
10 DA3
11 DA2
12 DA1
13 DA0
C301 0.01
IC302
PCM54
Vpot
B1(MSB)
B2
NC
B3
B4
B5
B6
B7
B8
B9
B10
B11
B12
-Vcc
MSBAdj
+Vcc
BPO
NC
Io
GND
SJ
RF
Vo
(LSB) B16
B15
B14
B13
A4
+5V (A)
-5V (A)
C302 33 16V
C303 0.01
C304 33 16V
R309 220k
+5V(A)
RV301 200k
-5V(A)
#
IC303
MC14051
DA-SEL0 11 A
DA-SEL1 10 B
DA-SEL2 9 C
DA INH 6 INH
3
13
14
15
12
1
5
2
4
VDD VSS VEE
16 8 7
B5
+5V (A)
-5V (A)
C305 0.1μ
R301 *10k
R302 *22k
304
B6
+15V
-15V
IC304
TL082
C306 0.1μ
R303 *10k
R304 *24k
C307 0.1μ
R305 *10k
R306 *15k
305
A7
IC305
TL082
C308 0.1μ
R307 *10k
R308 *15k
C309 0.1μ
306
A6
C310 0.1μ
IC306
TL082
TGV 5/7
EXTPHV 7/7
T-RADIUS 4/7
S-RADIUS 4/7
INIT-TRQ-T 6/7
INIT-TRQ-S 6/7

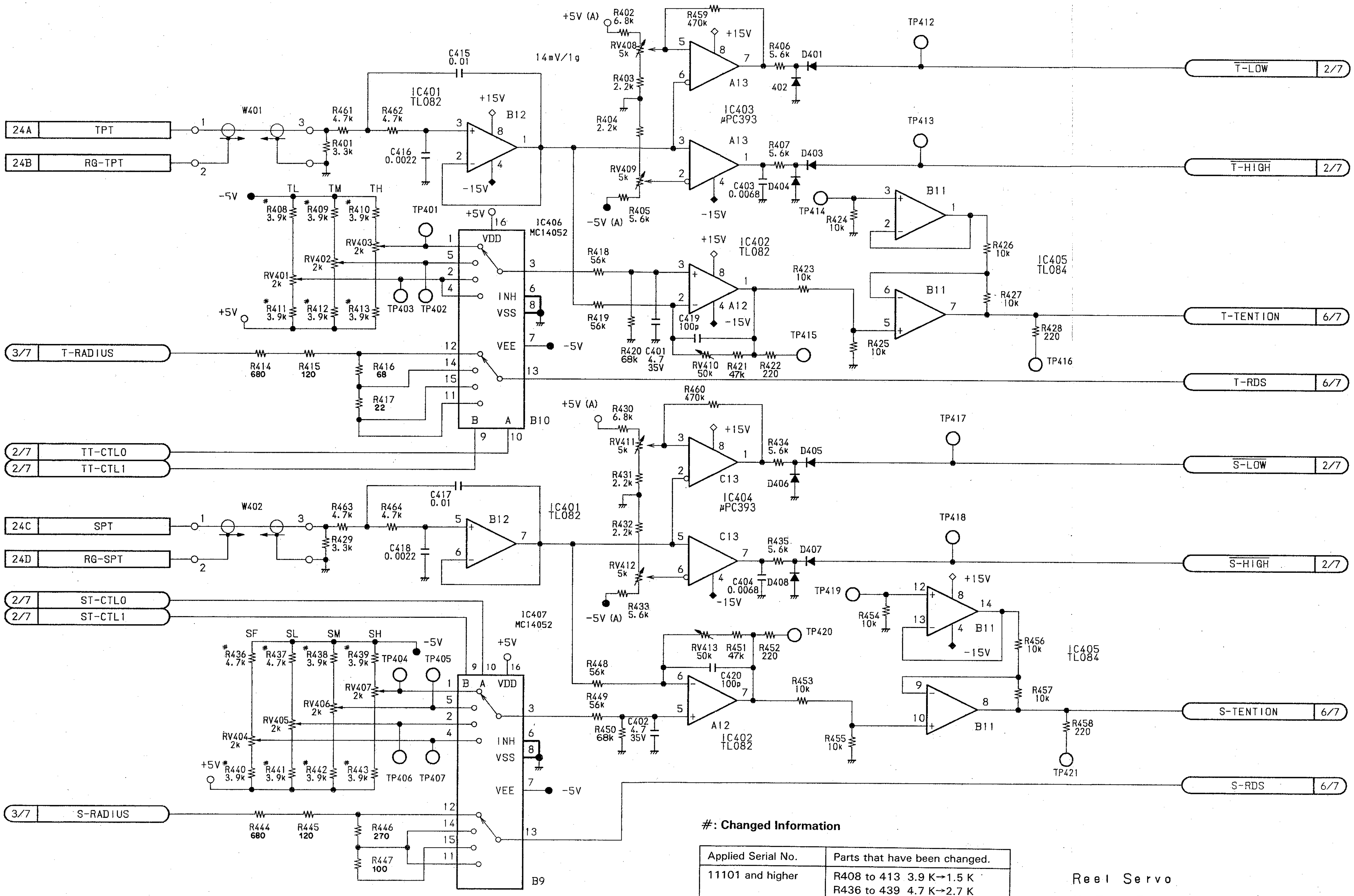
#: Changed Information

Applied Serial No.	Jumpers that have been added.	Parts that have been added.
10502, 10504, 10601 and higher	IC302-21 — R309 RV301-1 — +5 V (A) RV301-3 — -5 V (A) R309 — RV301-2	R309 220 K RV301 200 K

Reel Servo

RS-24 BOARD (3/7)

BOARD NO.1-627-097-11 & HIGHER
PCM-3348


24A TPT
24B RG-TPT
W401
R461 4.7k
R462 4.7k
R401 3.3k
C416 0.0022
C415 0.01
IC401 TL082
B12
+15V
-15V
14mV/1g
-5V
TL TM TH
R408 3.9k R409 3.9k R410 3.9k
RV401 2k RV402 2k RV403 2k
R411 3.9k R412 3.9k R413 3.9k
+5V
TP401 TP402 TP403
IC406 MC14052
VDD INH VSS VEE
B10
3/7 T-RADIUS
R414 680 R415 120 R416 68 R417 22
2/7 TT-CTL0
2/7 TT-CTL1
+5V (A)
R402 6.8k
RV408 5k
R403 2.2k
R404 2.2k
RV409 5k
R405 5.6k
-5V (A)
R459 470k
IC403 μPC393
A13
R406 5.6k D401 402
R407 5.6k D403 D404
C403 0.0068
TP412 TP413 TP414 TP415 TP416
T-LOW 2/7
T-HIGH 2/7
IC402 TL082
A12
R418 56k R419 56k
R420 68k C401 4.7 35V
C419 100p
RV410 50k R421 47k R422 220
R423 10k
R424 10k
B11
R425 10k R426 10k R427 10k R428 220
IC405 TL084
T-TENTION 6/7
T-RDS 6/7
24C SPT
24D RG-SPT
W402
R463 4.7k R464 4.7k
R429 3.3k
C418 0.0022
C417 0.01
IC401 TL082
2/7 ST-CTL0
2/7 ST-CTL1
IC407 MC14052
SF SL SM SH
R436 4.7k R437 4.7k R438 3.9k R439 3.9k
RV404 2k RV405 2k RV406 2k RV407 2k
R440 3.9k R441 3.9k R442 3.9k R443 3.9k
TP404 TP405 TP406 TP407
B9
3/7 S-RADIUS
R444 680 R445 120 R446 270 R447 100
R430 6.8k RV411 5k R431 2.2k R432 2.2k RV412 5k R433 5.6k
R460 470k
IC404 μPC393
C13
R434 5.6k D405 D406
R435 5.6k D407 D408
C404 0.0068
TP417 TP418 TP419 TP420 TP421
S-LOW 2/7
S-HIGH 2/7
RV413 50k R451 47k R452 220
C420 100p
R448 56k R449 56k R450 68k C402 4.7 35V
R453 10k R454 10k R455 10k R456 10k R457 10k R458 220
S-TENTION 6/7
S-RDS 6/7

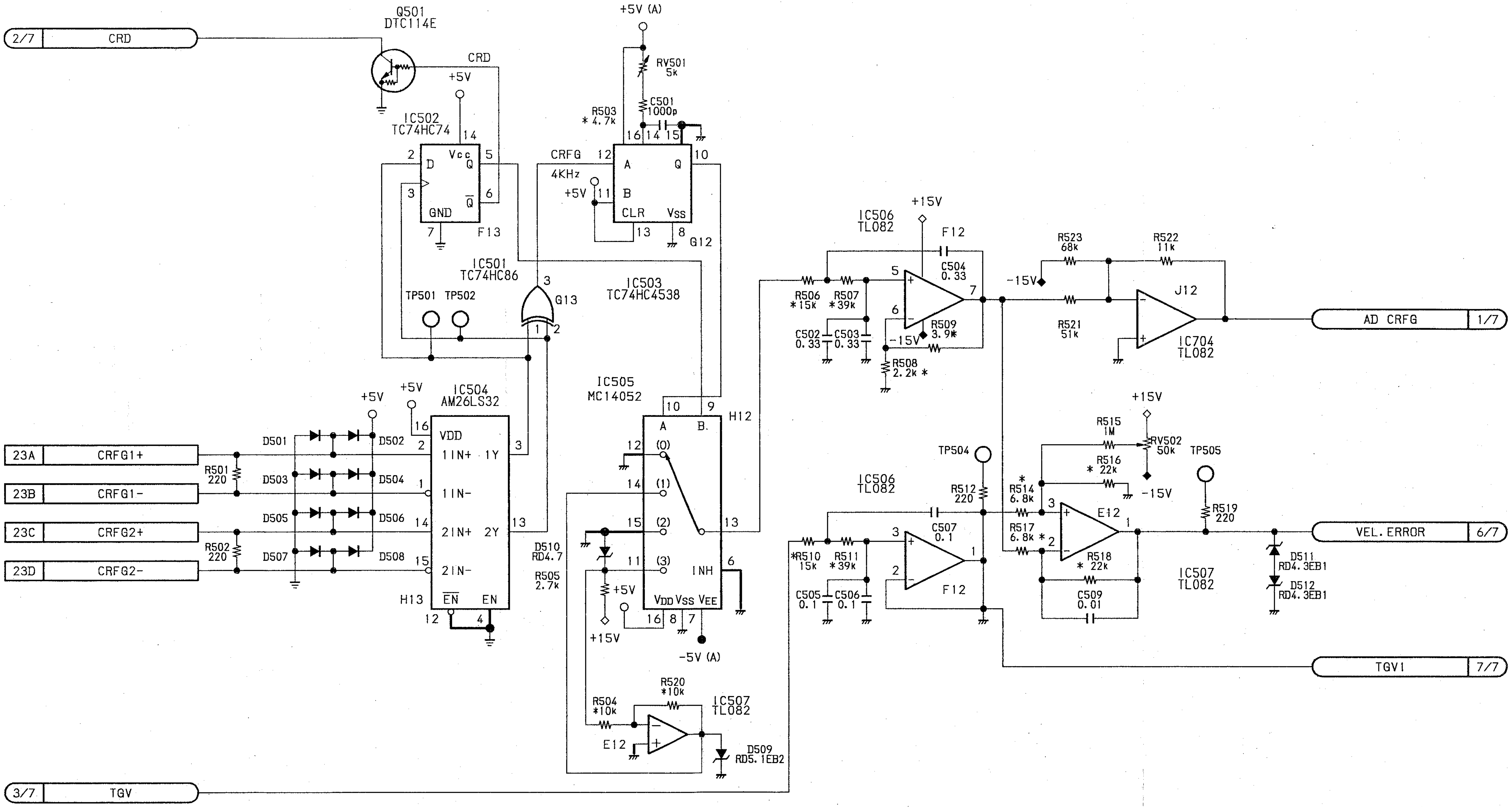
#: Changed Information

Applied Serial No.	Parts that have been changed.
11101 and higher	R408 to 413 3.9 K→1.5 K R436 to 439 4.7 K→2.7 K R438 to 443 3.9 K→1.5 K

Reel Servo

RS-24 BOARD (4/7)

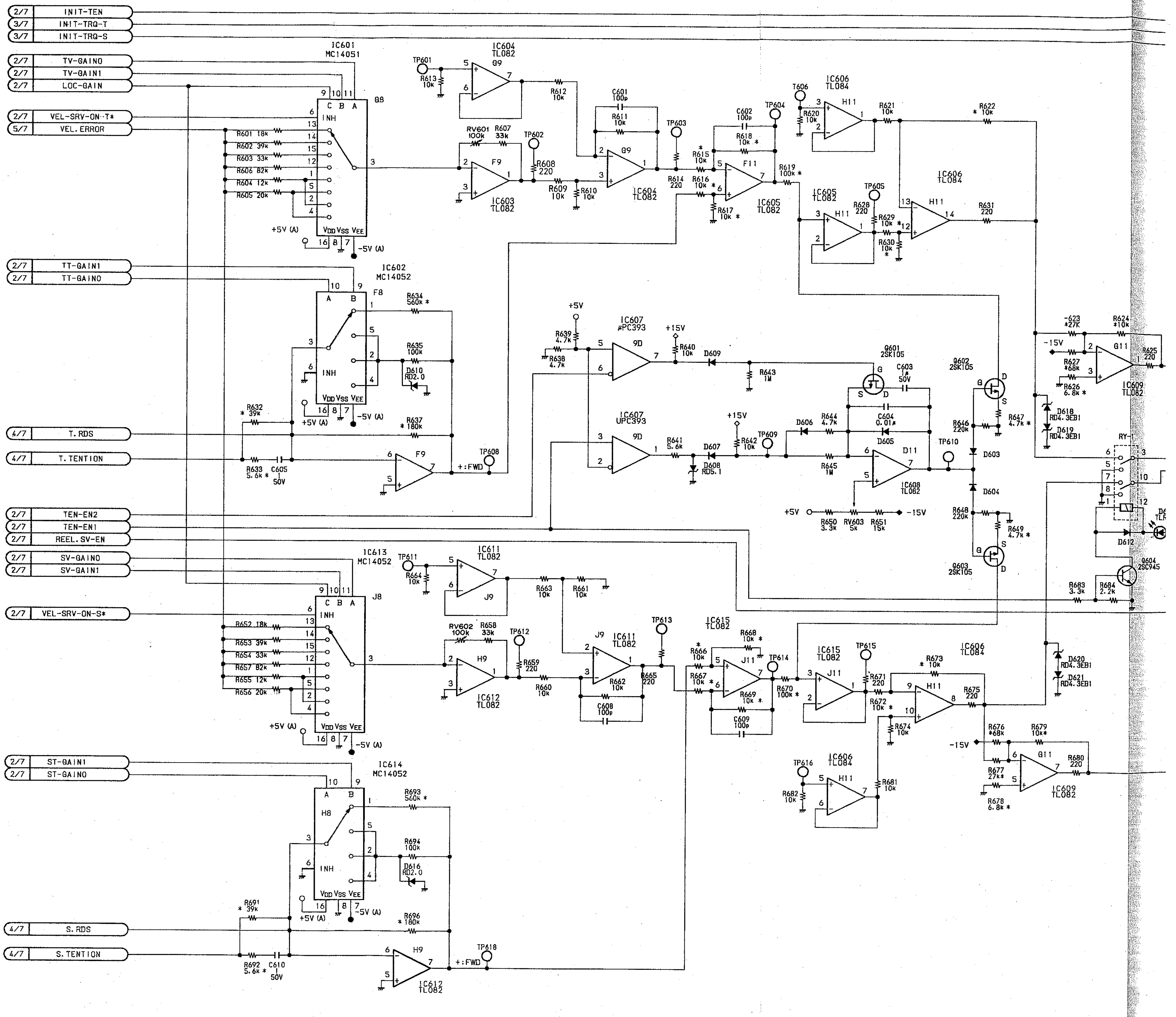
BOARD NO.1-627-098-11 & HIGHER
PCM-3348

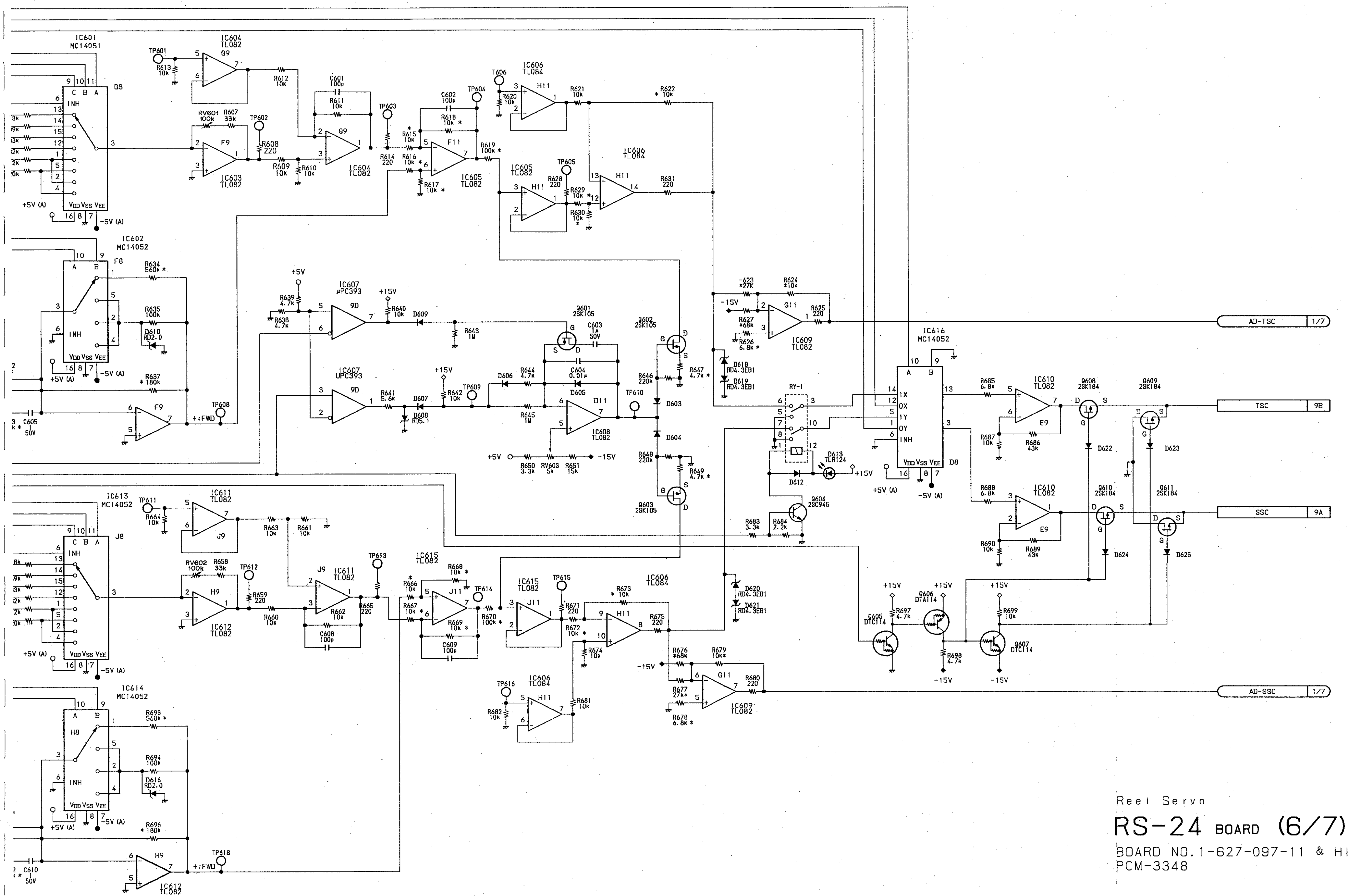

2/7
CRD
Q501
DTC114E
CRD
+5V
IC502
TC74HC74
14
2
D
Vcc
Q
5
3
GND
Q
6
7
F13
IC501
TC74HC86
3
G13
TP501
TP502
1
2
+5V (A)
RV501
5k
R503
* 4.7k
C501
1000p
16
14
15
CRFG
12
A
Q
10
4KHz
+5V
11
B
CLR
Vss
13
8
G12
IC503
TC74HC4538
+15V
IC506
TL082
F12
C504
0.33
5
7
R506
*15k
R507
*39k
6
C502
0.33
C503
0.33
-15V
R509
3.9*
R508
2.2k *
-15V
R523
68k
R522
11k
R521
51k
J12
IC704
TL082
AD CRFG
1/7
+5V
+5V
IC504
AM26LS32
16
VDD
D501
D502
2
1IN+
1Y
3
23A
CRFG1+
R501
220
D503
D504
1
1IN-
23B
CRFG1-
D505
D506
14
2IN+
2Y
13
23C
CRFG2+
R502
220
D507
D508
15
2IN-
23D
CRFG2-
H13
EN
EN
12
4
IC505
MC14052
10
9
A
B.
H12
12
(0)
14
(1)
15
(2)
13
11
(3)
INH
6
D510
RD4.7
R505
2.7k
+5V
VDD Vss VEE
16
8
7
+15V
-5V (A)
R520
*10k
R504
*10k
IC507
TL082
E12
D509
RD5.1EB2
+15V
R515
1M
RV502
50k
TP505
TP504
R516
* 22k
-15V
R512
220
*
R514
6.8k
3
E12
R517
6.8k
* 2
1
R518
* 22k
R519
220
IC506
TL082
C507
0.1
*R510
15k
R511
*39k
3
1
2
F12
C505
0.1
C506
0.1
C509
0.01
IC507
TL082
D511
RD4.3EB1
D512
RD4.3EB1
VEL.ERROR
6/7
TGV1
7/7
3/7
TGV

Reel Servo

RS-24 BOARD (5/7)

BOARD NO.1-627-097-11 & HIGHER
PCM-3348

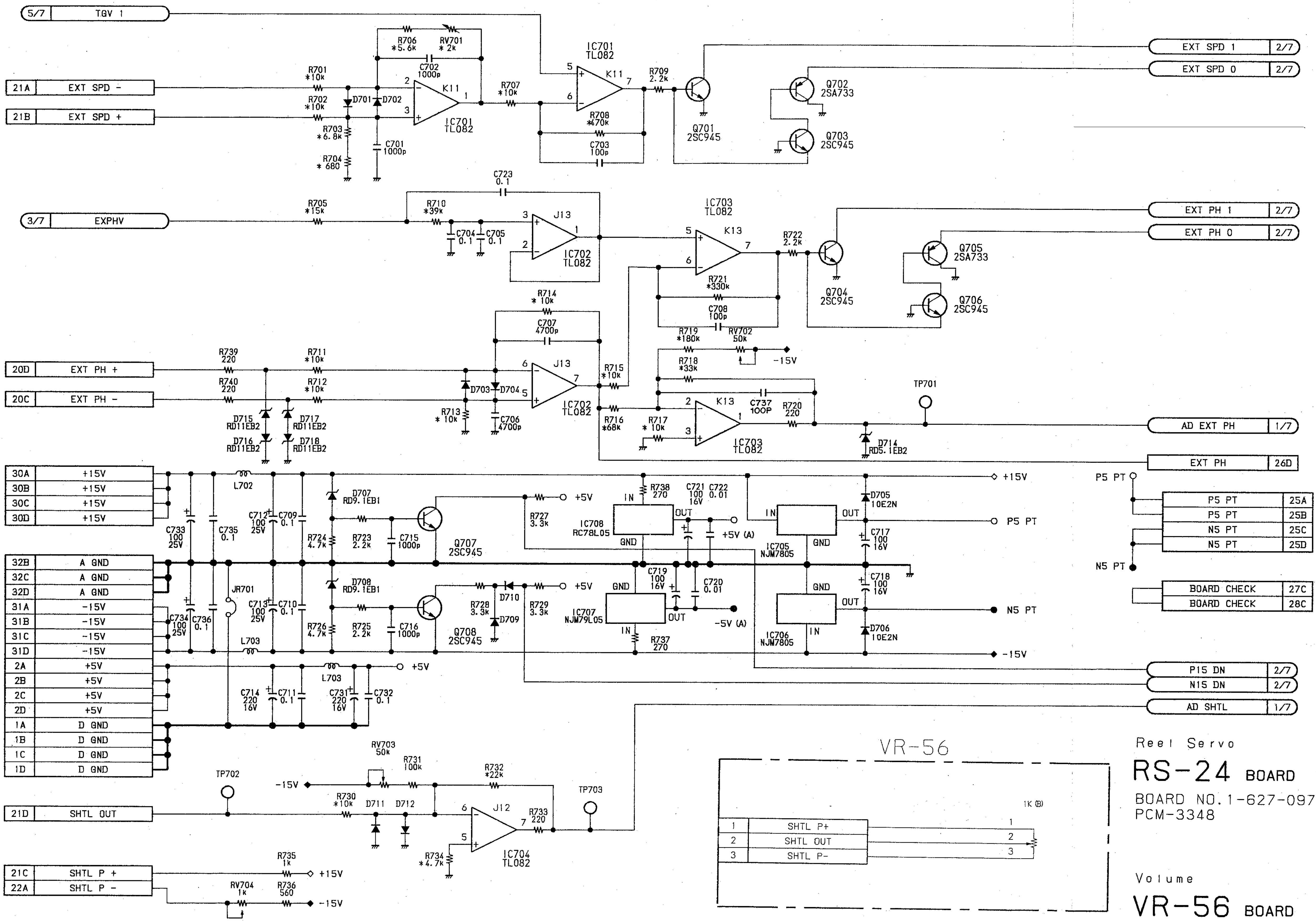

2/7 INIT-TEN
3/7 INIT-TRQ-T
3/7 INIT-TRQ-S
2/7 TV-GAIN0
2/7 TV-GAIN1
2/7 LOC-GAIN
2/7 VEL-SRV-ON-T*
5/7 VEL.ERROR
2/7 TT-GAIN1
2/7 TT-GAIN0
4/7 T.RDS
4/7 T.TENTION
2/7 TEN-EN2
2/7 TEN-EN1
2/7 REEL.SV-EN
2/7 SV-GAIN0
2/7 SV-GAIN1
2/7 VEL-SRV-ON-S*
2/7 ST-GAIN1
2/7 ST-GAIN0
4/7 S.RDS
4/7 S.TENTION
IC601 MC14051
IC602 MC14052
IC613 MC14052
IC614 MC14052
IC603 TL082
IC604 TL082
IC605 TL082
IC606 TL084
IC607 μPC393
IC607 UPC393
IC608 TL082
IC609 TL082
IC611 TL082
IC612 TL082
IC615 TL082
Q601 2SK105
Q602 2SK105
Q603 2SK105
Q604 2SC945
RY-1
D603
D604
D606
D607
D608 RD5.1
D609
D610 RD2.0
D612
D616 RD2.0
D618 RD4.3EB1
D619 RD4.3EB1
D620 RD4.3EB1
D621 RD4.3EB1
R601 18k
R602 39k
R603 33k
R606 82k
R604 12k
R605 20k
R652 18k
R653 39k
R654 33k
R657 82k
R655 12k
R656 20k
R634 560k *
R635 100k
R637 * 180k
R632 * 39k
R633 5.6k *
C605 50V
R693 560k *
R694 100k
R696 * 180k
R691 * 39k
R692 5.6k *
C610 50V
RV601 100k
R607 33k
RV602 100k
R658 33k
R608 220
R609 10k
R610 10k
R611 10k
C601 100p
R612 10k
R613 10k
R614 220
R615 10k *
R616 10k *
R617 10k *
R618 10k *
C602 100p
R619 100k *
R620 10k
R621 10k
R622 * 10k
R628 220
R629 10k *
R630 10k *
R631 220
R623 *27k
R624 *10k
R625 220
R626 6.8k *
R627 *68k
R638 4.7k
R639 4.7k
R640 10k
R641 5.6k
R642 10k
R643 1M
R644 4.7k
R645 1M
C603 1μ 50V
C604 0.01μ
R646 220k
R647 4.7k *
R648 220k
R649 4.7k *
R650 3.3k
RV603 5k
R651 15k
R683 3.3k
R684 2.2k
R659 220
R660 10k
R661 10k
R662 10k
R663 10k
R664 10k
R665 220
C608 100p
R666 10k *
R667 10k *
R668 10k *
R669 10k *
C609 100p
R670 100k *
R671 220
R672 10k *
R673 * 10k
R674 10k
R675 220
R676 *68k
R677 27k*
R678 6.8k *
R679 10k*
R680 220
R681 10k
R682 10k
TP601
TP602
TP603
TP604
TP605
TP606
TP608
TP609
TP610
TP611
TP612
TP613
TP614
TP615
TP616
TP618
+5V (A)
-5V (A)
+5V
+15V
-15V
+:FWD
INH
VDD VSS VEE
G8
F8
J8
H8
G9
F9
H9
J9
F11
H11
J11
G11
D11
9D
D605


IC601 MC14051
IC602 MC14052
IC603 TL082
IC604 TL082
IC605 TL082
IC606 TL084
IC607 μPC393
IC608 TL082
IC609 TL082
IC610 TL082
IC611 TL082
IC612 TL082
IC613 MC14052
IC614 MC14052
IC615 TL082
IC616 MC14052
Q601 2SK105
Q602 2SK105
Q603 2SK105
Q604 2SC945
Q605 DTC114
Q606 DTA114
Q607 DTC114
Q608 2SK184
Q609 2SK184
Q610 2SK184
Q611 2SK184
RY-1
D613 TLR124
+:FWD
AD-TSC 1/7
TSC 9B
SSC 9A
AD-SSC 1/7
+5V (A)
-5V (A)
+15V
-15V

Reel Servo

RS-24 BOARD (6/7)

BOARD NO.1-627-097-11 & HIGHER
PCM-3348


5/7 TGV 1
21A EXT SPD -
21B EXT SPD +
3/7 EXPHV
20D EXT PH +
20C EXT PH -
30A +15V
30B +15V
30C +15V
30D +15V
32B A GND
32C A GND
32D A GND
31A -15V
31B -15V
31C -15V
31D -15V
2A +5V
2B +5V
2C +5V
2D +5V
1A D GND
1B D GND
1C D GND
1D D GND
21D SHTL OUT
21C SHTL P +
22A SHTL P -
R701 *10k
R702 *10k
R703 *6.8k
R704 *680
D701
D702
C701 1000p
C702 1000p
R706 *5.6k
RV701 *2k
IC701 TL082
K11
R707 *10k
R708 *470k
C703 100p
R709 2.2k
Q701 2SC945
Q702 2SA733
Q703 2SC945
EXT SPD 1 2/7
EXT SPD 0 2/7
R705 *15k
R710 *39k
C723 0.1
C704 0.1
C705 0.1
J13
IC702 TL082
IC703 TL082
K13
R721 *330k
C708 100p
R722 2.2k
Q704 2SC945
Q705 2SA733
Q706 2SC945
EXT PH 1 2/7
EXT PH 0 2/7
R714 *10k
C707 4700p
R719 *180k
RV702 50k
-15V
R718 *33k
R739 220
R740 220
R711 *10k
R712 *10k
D703
D704
R713 *10k
C706 4700p
R715 *10k
R716 *68k
R717 *10k
C737 100P
R720 220
TP701
D714 RD5.1EB2
AD EXT PH 1/7
EXT PH 26D
D715 RD11EB2
D716 RD11EB2
D717 RD11EB2
D718 RD11EB2
L702
C733 100 25V
C735 0.1
C712 100 25V
C709 0.1
D707 RD9.1EB1
R724 4.7k
R723 2.2k
C715 1000p
Q707 2SC945
+5V
R727 3.3k
R738 270
IC708 RC78L05
C721 100 16V
C722 0.01
+5V (A)
IC705 NJM7805
D705 10E2N
C717 100 16V
+15V
P5 PT
P5 PT 25A
P5 PT 25B
N5 PT 25C
N5 PT 25D
N5 PT
BOARD CHECK 27C
BOARD CHECK 28C
JR701
C734 100 25V
C736 0.1
C713 100 25V
C710 0.1
D708 RD9.1EB1
R726 4.7k
R725 2.2k
C716 1000p
Q708 2SC945
R728 3.3k
D710
D709
R729 3.3k
IC707 NJM79L05
C719 100 16V
C720 0.01
-5V (A)
R737 270
IC706 NJM7805
C718 100 16V
D706 10E2N
L703
C714 220 16V
C711 0.1
C731 220 16V
C732 0.1
P15 DN 2/7
N15 DN 2/7
AD SHTL 1/7
IN
OUT
GND
TP702
RV703 50k
R731 100k
R732 *22k
R730 *10k
D711
D712
J12
R733 220
TP703
R734 *4.7k
IC704 TL082
R735 1k
RV704 1k
R736 560
VR-56
1K (B)
1 SHTL P+
2 SHTL OUT
3 SHTL P-

Reel Servo

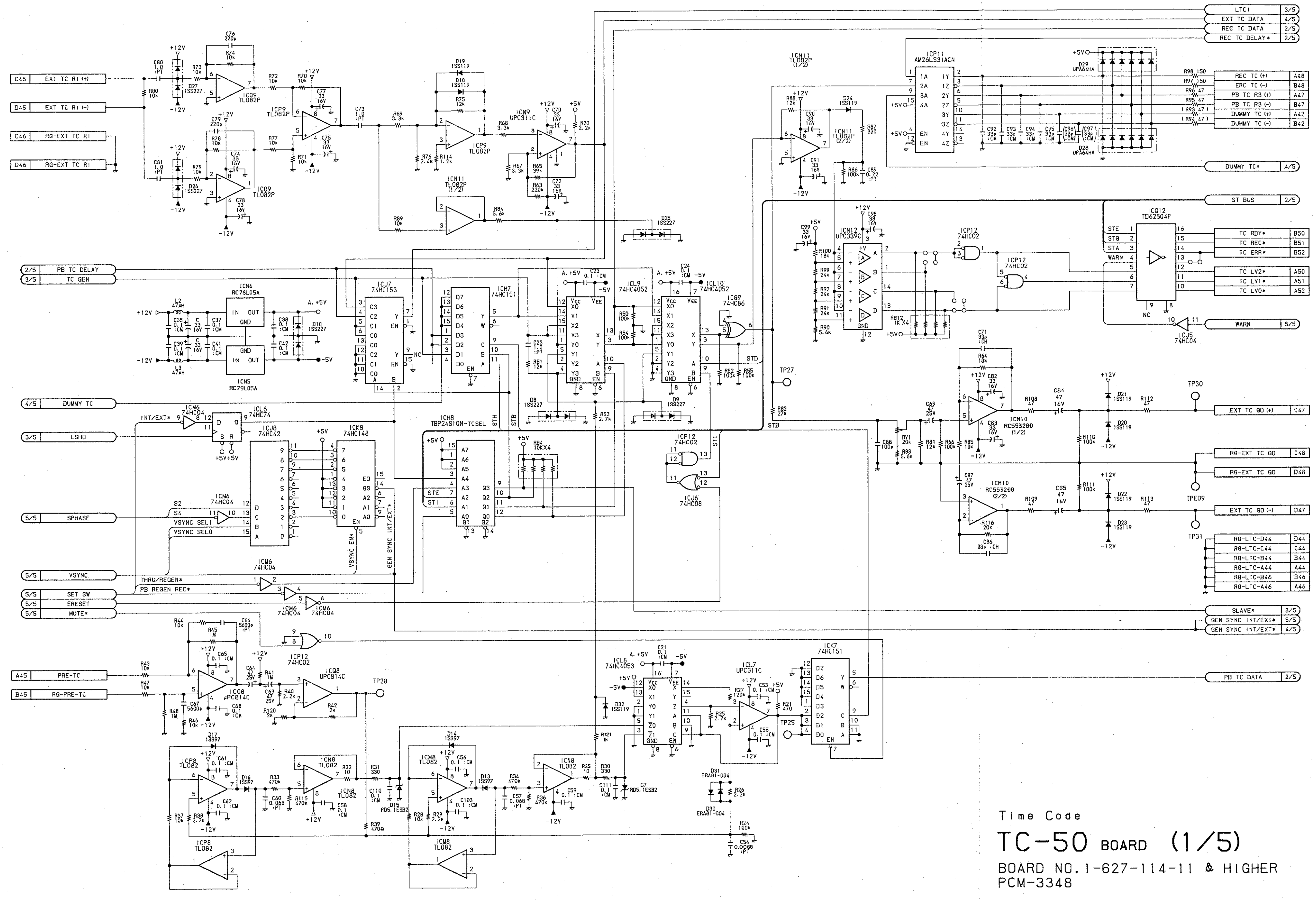
RS-24 BOARD (7/7)

BOARD NO.1-627-097-11 & HIGHER
PCM-3348

Volume

VR-56 BOARD

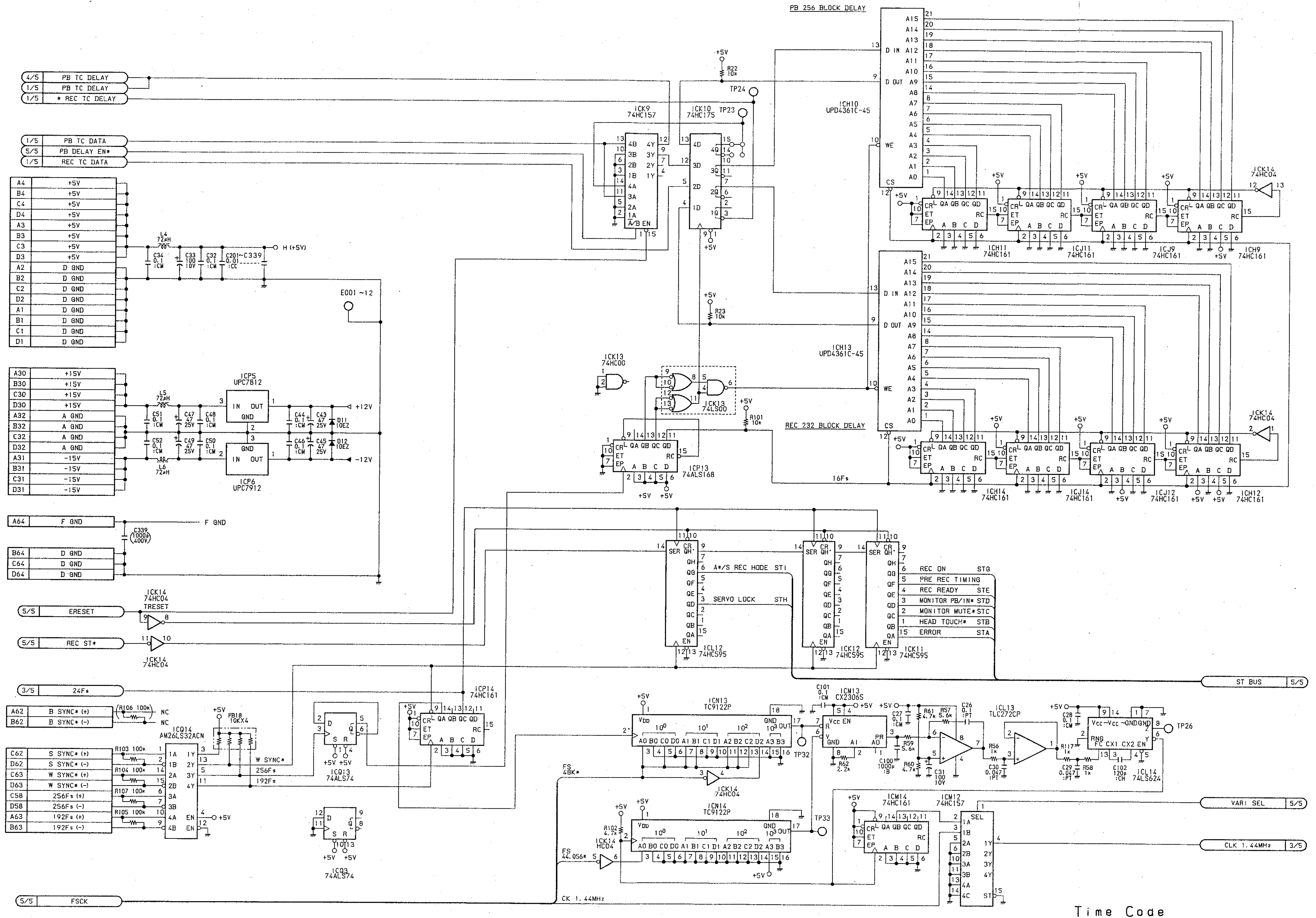
BOARD NO.1-620-326-12 & HIGHER
PCM-3348


C45 EXT TC RI (+)
D45 EXT TC RI (-)
C46 RG-EXT TC RI
D46 RG-EXT TC RI
ICQ9 TL082P
ICP9 TL082P
ICN9 UPC311C
ICN11 TL082P (1/2)
ICN11 TL082P (2/2)
ICP11 AM26LS31ACN
D29 UPA64HA
D28 UPA64HA
LTCI 3/5
EXT TC DATA 4/5
REC TC DATA 2/5
REC TC DELAY* 2/5
REC TC (+) A48
ERC TC (-) B48
PB TC R3 (+) A47
PB TC R3 (-) B47
DUMMY TC (+) A42
DUMMY TC (-) B42
DUMMY TC* 4/5
ST BUS 2/5
ICQ12 TD62504P
TC RDY* B50
TC REC* B51
TC ERR* B52
TC LV2* A50
TC LV1* A51
TC LV0* A52
WARN 5/5
ICJ5 74HC04
ICN12 UPC339C
ICP12 74HC02
2/5 PB TC DELAY
3/5 TC GEN
ICN6 RC78L05A
ICN5 RC79L05A
ICJ7 74HC153
ICH7 74HC151
ICL9 74HC4052
ICL10 74HC4052
ICQ9 74HC86
TP27
ICM10 RC5532D0 (1/2)
ICM10 RC5532D0 (2/2)
TP30
EXT TC GO (+) C47
RG-EXT TC GO C48
RG-EXT TC GO D48
TPE09
EXT TC GO (-) D47
TP31
RG-LTC-D44 D44
RG-LTC-C44 C44
RG-LTC-B44 B44
RG-LTC-A44 A44
RG-LTC-B46 B46
RG-LTC-A46 A46
4/5 DUMMY TC
3/5 LSHO
ICM6 74HC04
ICL6 74HC74
ICJ8 74HC42
ICK8 74HC148
ICH8 TBP24S10N-TCSEL
ICP12 74HC02
ICJ6 74HC08
5/5 SPHASE
5/5 VSYNC
5/5 SET SW
5/5 ERESET
5/5 MUTE*
THRU/REGEN*
PB REGEN REC*
VSYNC SEL1
VSYNC SEL0
VSYNC EN*
GEN SYNC INT/EXT*
SLAVE* 3/5
GEN SYNC INT/EXT* 5/5
GEN SYNC INT/EXT* 4/5
A45 PRE-TC
B45 RG-PRE-TC
ICQ8 μPC814C
ICQ8 UPC814C
TP28
ICL8 74HC4053
ICL7 UPC311C
ICK7 74HC151
TP25
PB TC DATA 2/5
ICP8 TL082
ICN8 TL082
ICM8 TL082
STB
STD
STC
STH

Time Code

TC-50 BOARD (1/5)

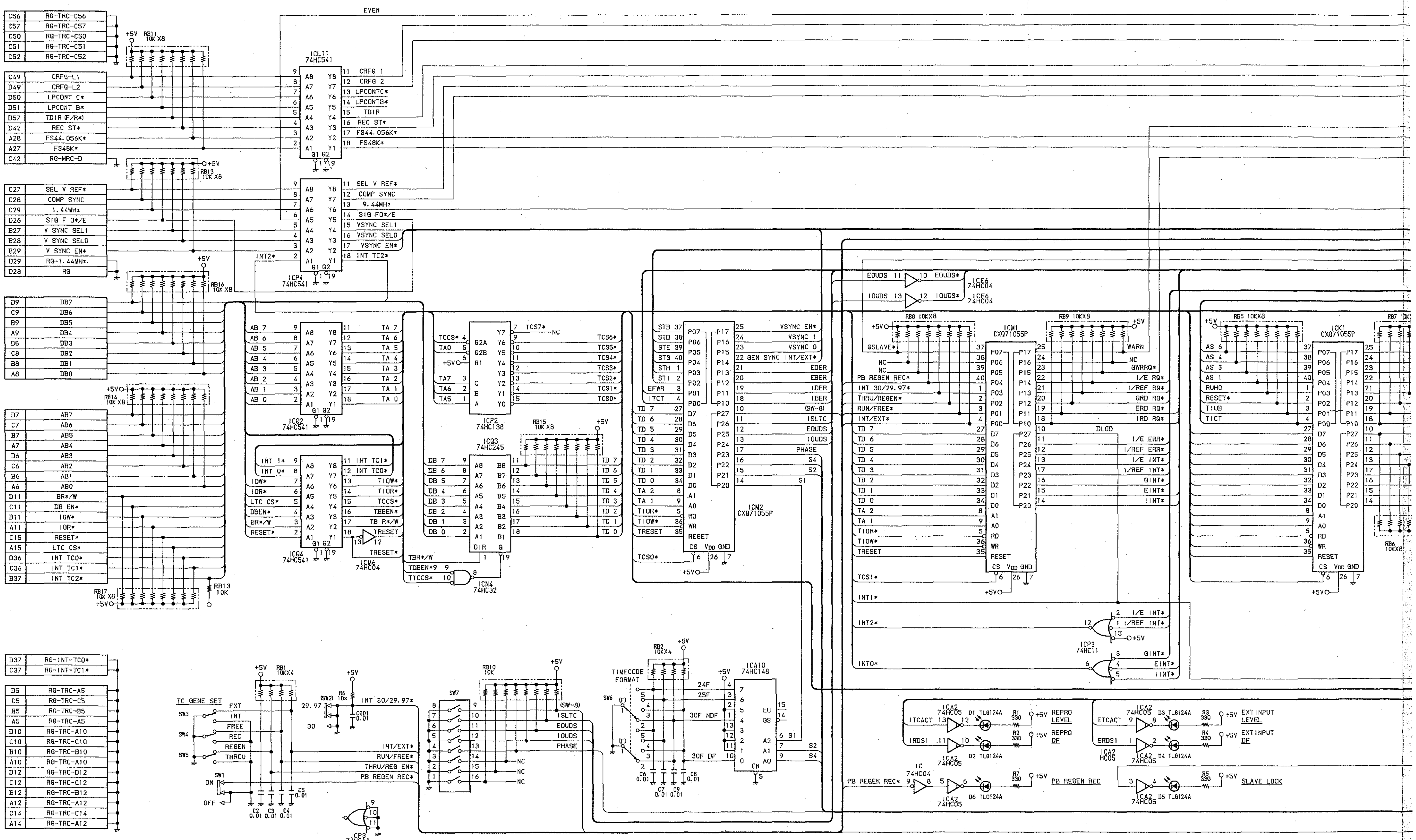
BOARD NO.1-627-114-11 & HIGHER
PCM-3348

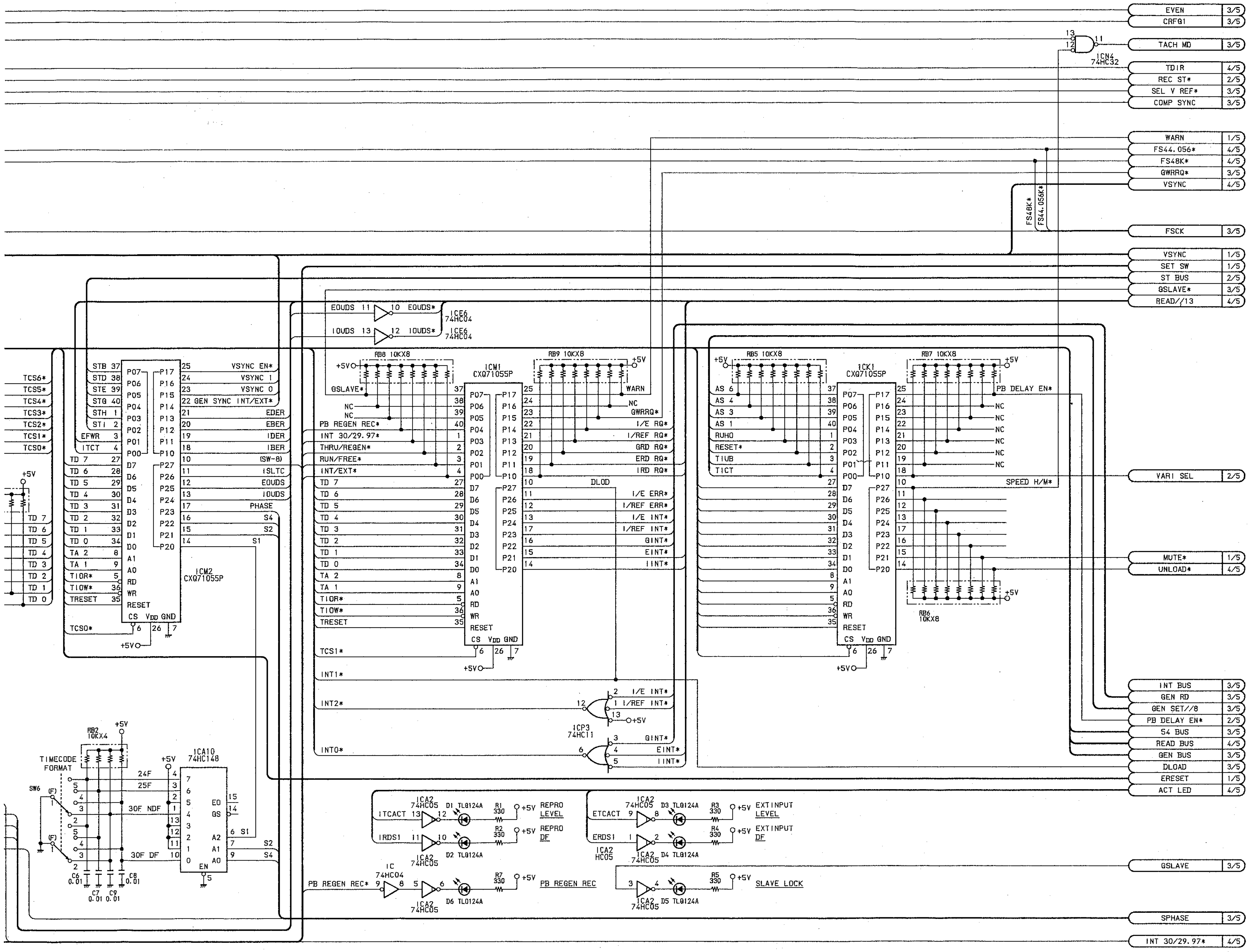

PB 256 BLOCK DELAY
REC 232 BLOCK DELAY
PB TC DELAY
* REC TC DELAY
PB TC DATA
PB DELAY EN*
REC TC DATA
ICK9 74HC157
ICK10 74HC175
ICH10 UPD4361C-45
ICH13 UPD4361C-45
ICH11 74HC161
ICJ11 74HC161
ICJ9 74HC161
ICH9 74HC161
ICH14 74HC161
ICJ14 74HC161
ICJ12 74HC161
ICH12 74HC161
ICK14 74HC04
ICK13 74HC00
ICK13 74LS00
ICP13 74ALS168
ICP5 UPC7812
ICP6 UPC7912
H (+5V)
+12V
-12V
F GND
E001 ~12
ERESET
REC ST*
24Fs
B SYNC* (+)
B SYNC* (-)
S SYNC* (+)
S SYNC* (-)
W SYNC* (+)
W SYNC* (-)
256Fs (+)
256Fs (-)
192Fs (+)
192Fs (-)
ICQ14 AM26LS32ACN
PB18 10KX4
ICQ13 74ALS74
ICQ3 74ALS74
ICP14 74HC161
ICL12 74HC595
ICK12 74HC595
ICK11 74HC595
A*/S REC MODE STI
SERVO LOCK STH
REC ON STG
PRE REC TIMING
REC READY STE
MONITOR PB/IN* STD
MONITOR MUTE* STC
HEAD TOUCH* STB
ERROR STA
ST BUS
ICN13 TC9122P
ICN14 TC9122P
ICM13 CX23065
ICL13 TLC272CP
ICL14 74LS624
ICM14 74HC161
ICM12 74HC157
TP23
TP24
TP26
TP32
TP33
VARI SEL
CLK 1.44MHz
FSCK
CK 1.44MHz
FS 48K*
FS 44.056*
16Fs

Time Code

TC-50 BOARD (2/5)

BOARD NO.1-627-114-11 & HIGHER
PCM-3348

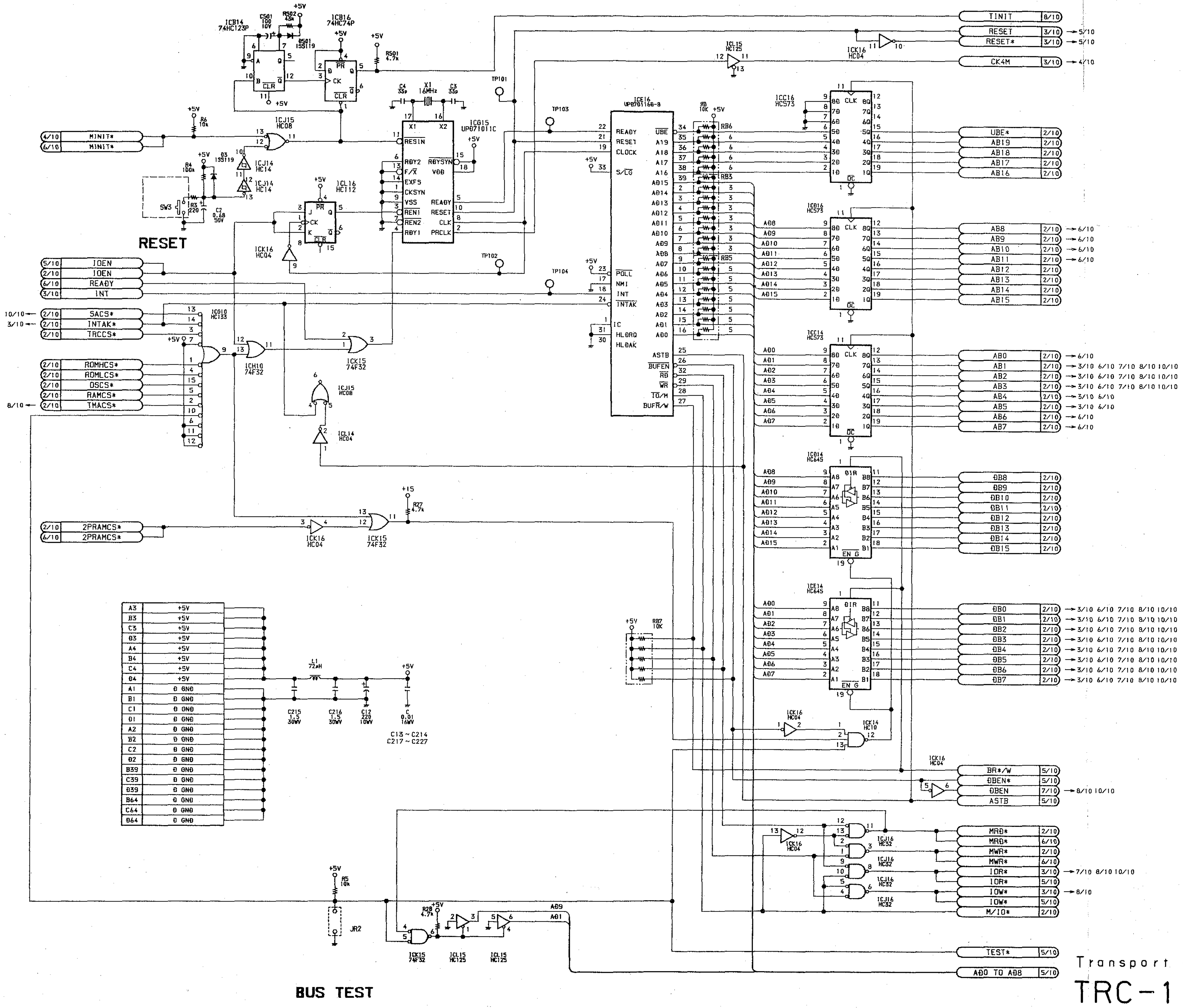

EYEN
C56 RG-TRC-C56
C57 RG-TRC-C57
C50 RG-TRC-C50
C51 RG-TRC-C51
C52 RG-TRC-C52
C49 CRFG-L1
D49 CRFG-L2
D50 LPCONT C*
D51 LPCONT B*
D57 TDIR (F/R*)
D42 REC ST*
A28 FS44.056K*
A27 FS48K*
C42 RG-MRC-D
C27 SEL V REF*
C28 COMP SYNC
C29 1.44MHz
D26 SIG F O*/E
B27 V SYNC SEL1
B28 V SYNC SEL0
B29 V SYNC EN*
D29 RG-1.44MHz
D28 RG
D9 DB7
C9 DB6
B9 DB5
A9 DB4
D8 DB3
C8 DB2
B8 DB1
A8 DB0
D7 AB7
C7 AB6
B7 AB5
A7 AB4
D6 AB3
C6 AB2
B6 AB1
A6 AB0
D11 BR*/W
C11 DB EN*
B11 IOW*
A11 IOR*
C15 RESET*
A15 LTC CS*
D36 INT TC0*
C36 INT TC1*
B37 INT TC2*
D37 RG-INT-TC0*
C37 RG-INT-TC1*
D5 RG-TRC-A5
C5 RG-TRC-C5
B5 RG-TRC-B5
A5 RG-TRC-A5
D10 RG-TRC-A10
C10 RG-TRC-C10
B10 RG-TRC-B10
A10 RG-TRC-A10
D12 RG-TRC-D12
C12 RG-TRC-C12
B12 RG-TRC-B12
A12 RG-TRC-A12
C14 RG-TRC-C14
A14 RG-TRC-A12
+5V RB11 10K X8
RB13 10K X8
RB16 10K X8
RB14 10K X8
RB17 10K X8
RB13 10K
ICL11 74HC541
CRFG 1
CRFG 2
LPCONTC*
LPCONTB*
TDIR
REC ST*
FS44.056K*
FS48K*
SEL V REF*
COMP SYNC
9.44MHz
SIG FO*/E
VSYNC SEL1
VSYNC SEL0
VSYNC EN*
INT TC2*
INT2*
ICP4 74HC541
ICQ2 74HC541
ICQ4 74HC541
ICM6 74HC04
TRESET
TRESET*
ICP2 74HC138
TCS7* NC
TCS6*
TCS5*
TCS4*
TCS3*
TCS2*
TCS1*
TCS0*
TCCS*
ICQ3 74HC245
RB15 10K X8
TBR*/W
TDBEN*
TTCCS*
ICN4 74HC32
ICM2 CXQ71055P
EFWR
ITCT
VSYNC EN*
VSYNC 1
VSYNC 0
GEN SYNC INT/EXT*
EDER
EBER
IDER
IBER
(SW-8)
ISLTC
EOUDS
IOUDS
PHASE
S4
S2
S1
EOUDS
IOUDS
ICE6 74HC04
ICM1 CXQ71055P
RB8 10KX8
RB9 10KX8
GSLAVE*
PB REGEN REC*
INT 30/29.97*
THRU/REGEN*
RUN/FREE*
INT/EXT*
WARN
GWRRQ*
I/E RQ*
I/REF RQ*
GRD RQ*
ERD RQ*
IRD RQ*
DLOD
I/E ERR*
I/REF ERR*
I/E INT*
I/REF INT*
GINT*
EINT*
IINT*
TCS1*
INT1*
INT2*
INT0*
ICP3 74HC11
ICK1 CXQ71055P
RB5 10KX8
RB7 10K
RB6 10KX8
AS 6
AS 4
AS 3
AS 1
RUHO
RESET*
TIUB
TICT
ICA2 74HC05
D1 TL0124A
REPRO LEVEL
REPRO DF
ITCACT
IRDS1
D2 TL0124A
D3 TL0124A
EXT INPUT LEVEL
EXT INPUT DF
ETCACT
ERDS1
D4 TL0124A
D5 TL0124A
SLAVE LOCK
D6 TL0124A
PB REGEN REC
IC 74HC04
R1 330
R2 330
R3 330
R4 330
R5 330
R7 330
TC GENE SET
EXT
INT
FREE
REC
REGEN
THROU
SW3
SW4
SW5
SW1
ON
OFF
RB1 10KX4
C2 0.01
C3 0.01
C4 0.01
C5 0.01
(SW2) 29.97
30
R6 10k
C001 0.01
INT 30/29.97*
INT/EXT*
RUN/FREE*
THRU/REG EN*
PB REGEN REC*
SW7
RB10 10K
NC
TIMECODE FORMAT
SW6
RB2 10KX4
ICA10 74HC148
24F
25F
30F NDF
30F DF
C6 0.01
C7 0.01
C8 0.01
C9 0.01
ICP3 74HC11


EVEN 3/5
CRFG1 3/5
TACH MD 3/5
ICN4 74HC32
TDIR 4/5
REC ST* 2/5
SEL V REF* 3/5
COMP SYNC 3/5
WARN 1/5
FS44.056* 4/5
FS48K* 4/5
GWRRQ* 3/5
VSYNC 4/5
FS48K*
FS44.056K*
FSCK 3/5
VSYNC 1/5
SET SW 1/5
ST BUS 2/5
GSLAVE* 3/5
READ//13 4/5
ICE6 74HC04
EOUDS
IOUDS
RB8 10KX8
RB9 10KX8
RB5 10KX8
RB7 10KX8
RB6 10KX8
RB2 10KX4
ICM1 CXQ71055P
ICM2 CXQ71055P
ICK1 CXQ71055P
ICA10 74HC148
ICP3 74HC11
ICA2 74HC05
PB DELAY EN*
SPEED H/M*
VARI SEL 2/5
MUTE* 1/5
UNLOAD* 4/5
INT BUS 3/5
GEN RD 3/5
GEN SET//8 3/5
PB DELAY EN* 2/5
S4 BUS 3/5
READ BUS 4/5
GEN BUS 3/5
DLOAD 3/5
ERESET 1/5
ACT LED 4/5
GSLAVE 3/5
SPHASE 3/5
INT 30/29.97* 4/5
TCS6*
TCS5*
TCS4*
TCS3*
TCS2*
TCS1*
TCS0*
TIMECODE FORMAT
SW6
24F
25F
30F NDF
30F DF
REPRO LEVEL
REPRO DF
EXT INPUT LEVEL
EXT INPUT DF
PB REGEN REC
SLAVE LOCK
TL0124A
+5V

Time Code

TC-50 BOARD (5/5)

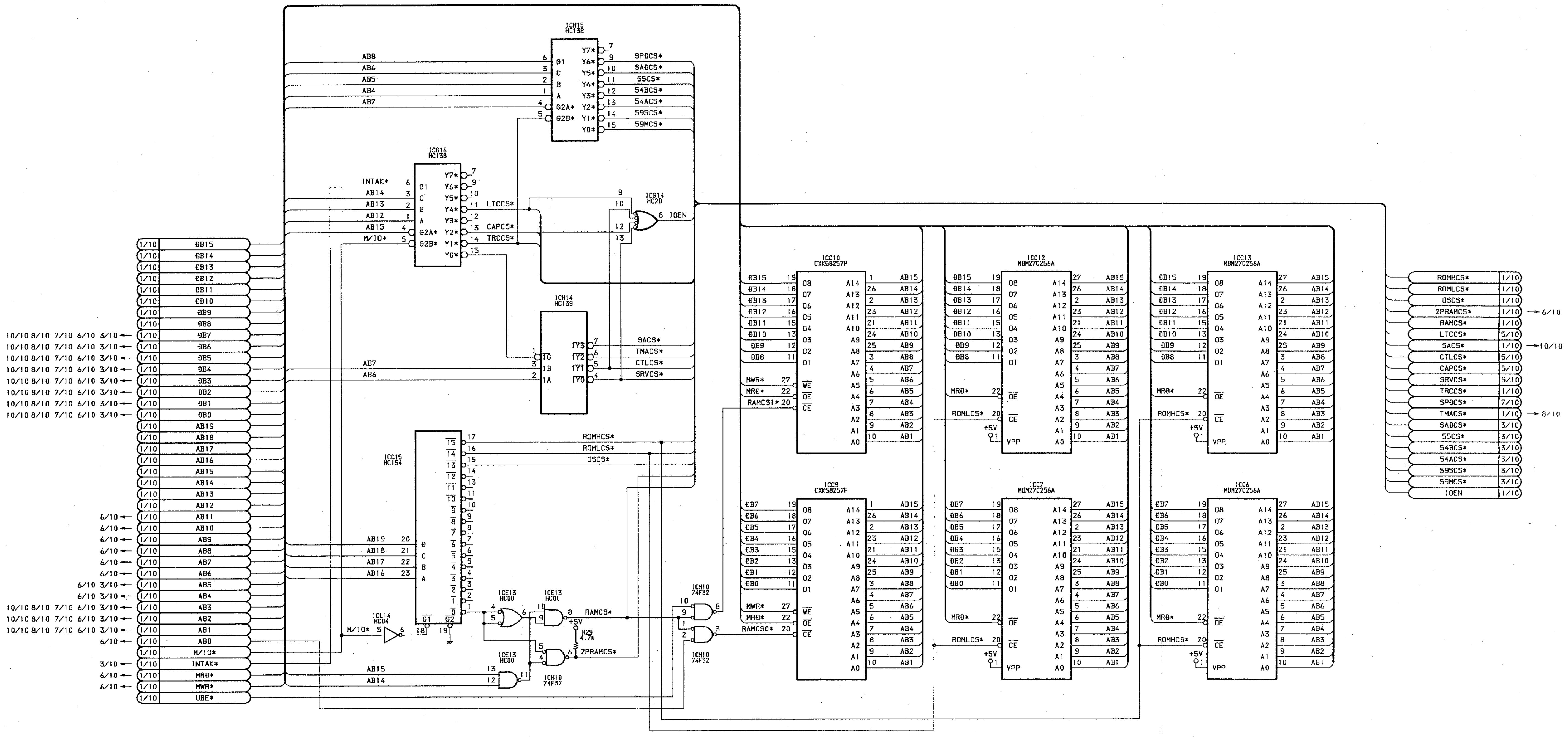
BOARD NO. 1-627-114-11 & HIGHER
PCM-3348


RESET
BUS TEST
TINIT
RESET
RESET*
CK4M
UBE*
AB19
AB18
AB17
AB16
AB8
AB9
AB10
AB11
AB12
AB13
AB14
AB15
AB0
AB1
AB2
AB3
AB4
AB5
AB6
AB7
DB8
DB9
DB10
DB11
DB12
DB13
DB14
DB15
DB0
DB1
DB2
DB3
DB4
DB5
DB6
DB7
BR*/W
DBEN*
DBEN
ASTB
MRD*
MWR*
IOR*
IOW*
M/IO*
TEST*
A00 TO A08
MINIT*
IOEN
READY
INT
SACS*
INTAK*
TRCCS*
ROMHCS*
ROMLCS*
OSCS*
RAMCS*
TMACS*
2PRAMCS*
IC816 UPD70116G-8
IC815 UPD71011C
X1 16MHz
SW3
JR2
TP101
TP102
TP103
TP104

Transport CPU

TRC-1 BOARD (1/10)

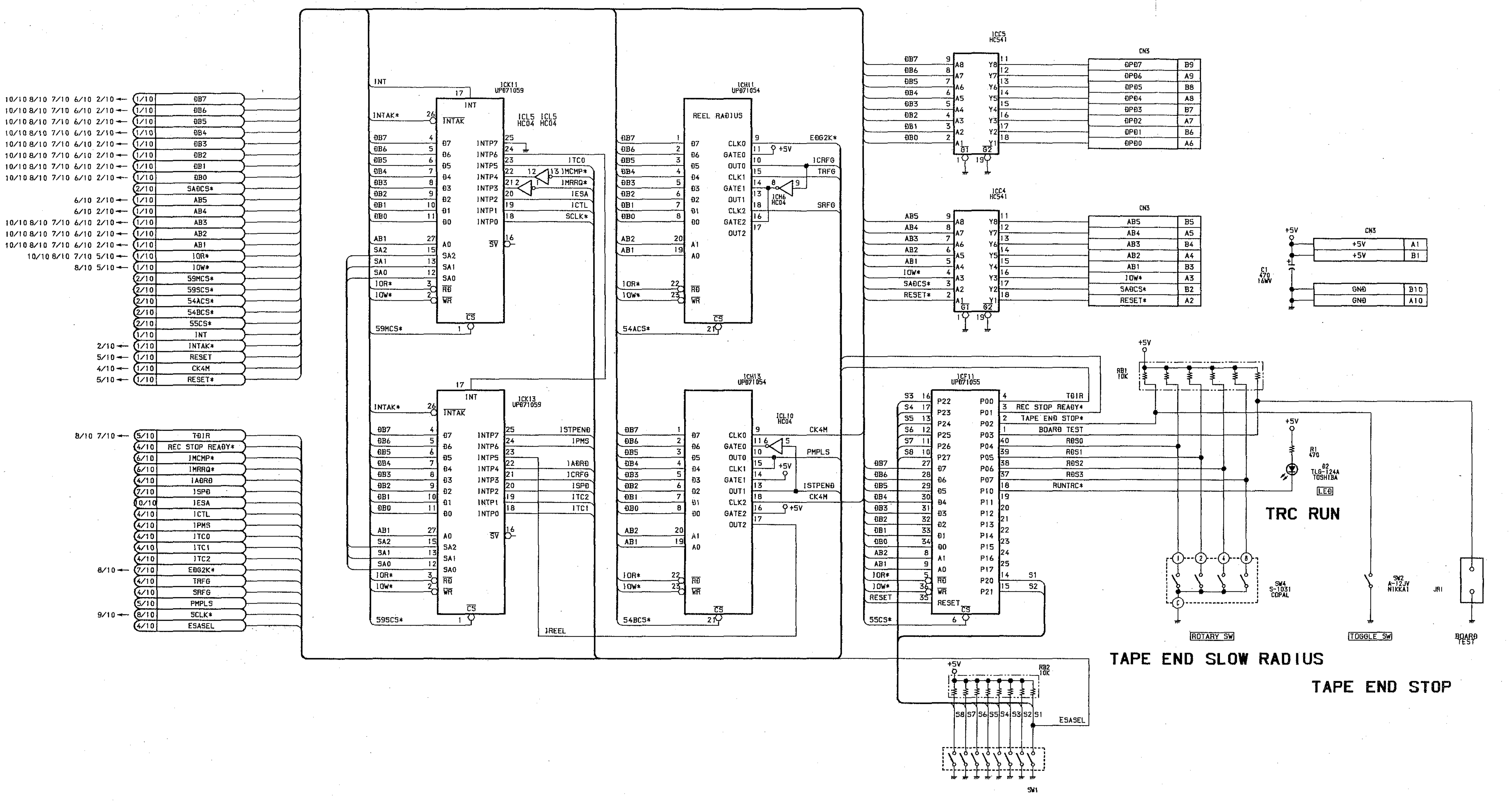
BOARD NO.1-627-115-11 & HIGHER
PCM-3348


IC H15 HC138
IC B16 HC138
IC G14 HC20
IC H14 HC139
IC C15 HC154
IC C10 CXK58257P
IC C9 CXK58257P
IC C12 MBM27C256A
IC C7 MBM27C256A
IC C13 MBM27C256A
IC C6 MBM27C256A
IC E13 HC00
IC L14 HC04
IC H10 74F32
R29 4.7k
+5V
SPDCS*
SADCS*
55CS*
54BCS*
54ACS*
59SCS*
59MCS*
LTCCS*
CAPCS*
TRCCS*
IOEN
SACS*
TMACS*
CTLCS*
SRVCS*
ROMHCS*
ROMLCS*
OSCS*
RAMCS*
2PRAMCS*
RAMCS1*
RAMCS0*
INTAK*
M/IO*
MRD*
MWR*
UBE*
DB15–DB0
AB19–AB0
1/10
3/10
5/10
6/10
7/10
8/10
10/10
→ 6/10
→ 10/10
→ 8/10

Transport CPU

TRC-1 BOARD (2/10)

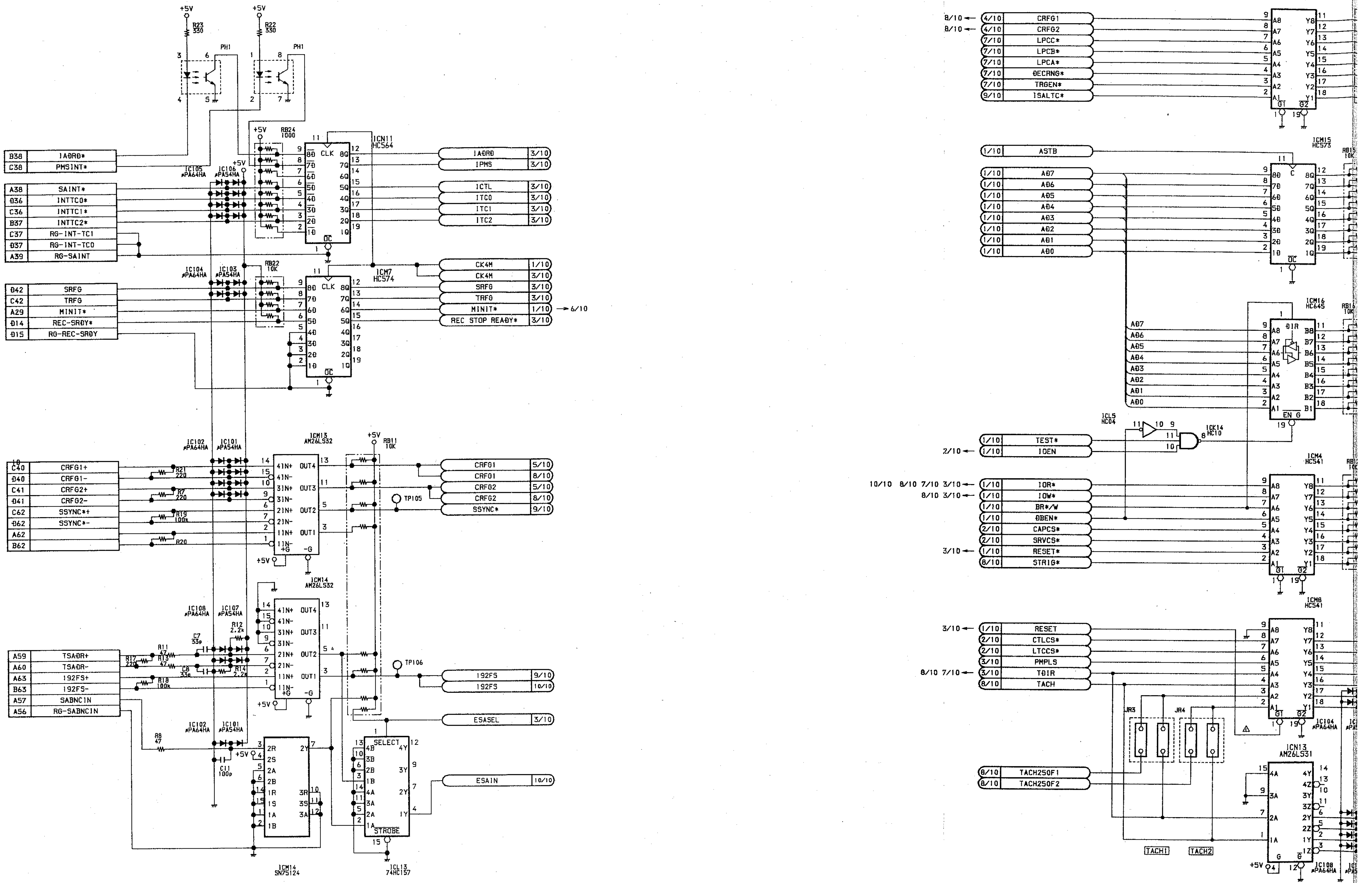
BOARD NO.1-627-115-11 & HIGHER
PCM-3348


ICK11 UPD71059
ICK13 UPD71059
ICL5 HC04
ICH11 UPD71054
REEL RADIUS
ICH6 HC04
ICH13 UPD71054
ICL10 HC04
ICC5 HC541
ICC4 HC541
ICF11 UPD71055
CN3
RB1 10K
RB2 10K
R1 470
D2 TLG-124A TOSHIBA
LED
C1 470 16MV
SW4 S-1031 COPAL
SW2 A-12JV NIKKAI
JR1
SW1
ROTARY SW
TOGGLE SW
BOARD TEST
TRC RUN
TAPE END SLOW RADIUS
TAPE END STOP

Transport CPU

TRC-1 BOARD (3/10)

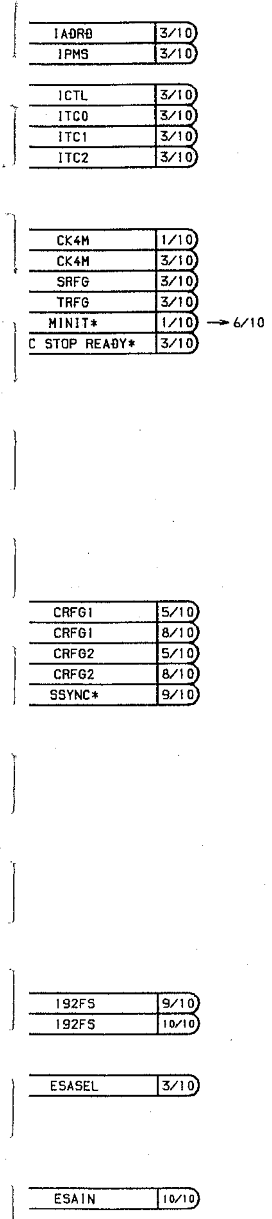
BOARD NO.1-627-115-11 & HIGHER
PCM-3348


+5V
R23 330
R22 330
PH1
RB24 1000
ICN11 HC564
ICM7 HC574
IC105 #PA64HA
IC106 #PA54HA
IC104 #PA64HA
IC103 #PA54HA
RB22 10K
B38 IA0RD*
C38 PMSINT*
A38 SAINT*
D36 INTTC0*
C36 INTTC1*
B37 INTTC2*
C37 RG-INT-TC1
D37 RG-INT-TC0
A39 RG-SAINT
D42 SRFG
C42 TRFG
A29 MINIT*
D14 REC-SRDY*
D15 RG-REC-SRDY
IA0RD 3/10
IPMS 3/10
ICTL 3/10
ITC0 3/10
ITC1 3/10
ITC2 3/10
CK4M 1/10
CK4M 3/10
SRFG 3/10
TRFG 3/10
MINIT* 1/10 → 6/10
REC STOP READY* 3/10
ICM13 AM26LS32
RB11 10K
IC102 #PA64HA
IC101 #PA54HA
C40 CRFG1+
D40 CRFG1-
C41 CRFG2+
D41 CRFG2-
C62 SSYNC*+
D62 SSYNC*-
A62
B62
R21 220
R7 220
R19 100k
R20
CRFG1 5/10
CRFG1 8/10
CRFG2 5/10
CRFG2 8/10
SSYNC* 9/10
TP105
ICM14 AM26LS32
IC108 #PA64HA
IC107 #PA54HA
R12 2.2k
R14 2.2k
C7 33p
C8 33p
R11 47
R13 47
R17 220
R18 100k
A59 TSADR+
A60 TSADR-
A63 192FS+
B63 192FS-
A57 SABNCIN
A56 RG-SABNCIN
TP106
192FS 9/10
192FS 10/10
ESASEL 3/10
ESAIN 10/10
R8 47
C11 100p
ICM14 SN75124
ICL13 74HC157
SELECT
STROBE
ICN2 HC541
8/10 ← 4/10 CRFG1
8/10 ← 4/10 CRFG2
7/10 LPCC*
7/10 LPCB*
7/10 LPCA*
7/10 DECRNG*
7/10 TRGEN*
9/10 ISALTC*
ICM15 HC573
1/10 ASTB
1/10 AD7
1/10 AD6
1/10 AD5
1/10 AD4
1/10 AD3
1/10 AD2
1/10 AD1
1/10 AD0
ICM16 HC645
ICL5 HC04
ICK14 HC10
1/10 TEST*
2/10 ← 1/10 IOEN
ICM4 HC541
10/10 8/10 7/10 3/10 ← 1/10 IOR*
8/10 3/10 ← 1/10 IOW*
1/10 BR*/W
1/10 DBEN*
2/10 CAPCS*
2/10 SRVCS*
3/10 ← 1/10 RESET*
8/10 STRIG*
ICM8 HC541
3/10 ← 1/10 RESET
2/10 CTLCS*
2/10 LTCCS*
3/10 PMPLS
8/10 7/10 ← 3/10 TDIR
8/10 TACH
JR3
JR4
IC104 #PA64HA
ICN13 AM26LS31
8/10 TACH250F1
8/10 TACH250F2
TACH1
TACH2
IC108 #PA64HA

Transport CPU

TRC-1 BOARD (4/10)

BOARD NO. 1-627-115-11 & HIGHER
PCM-3348

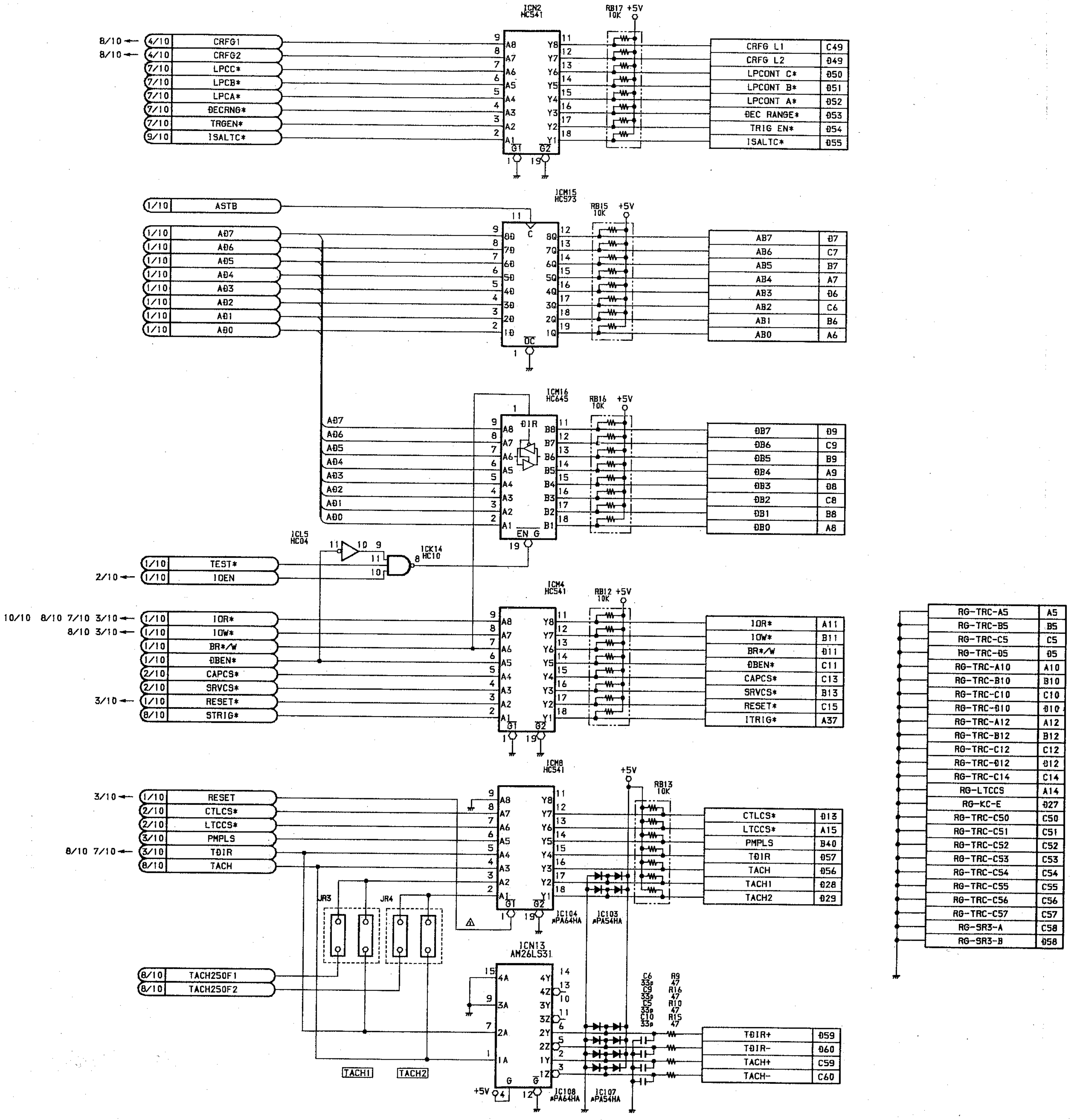


IADR0 3/10
IPMS 3/10
ICTL 3/10
ITC0 3/10
ITC1 3/10
ITC2 3/10
CK4M 1/10
CK4M 3/10
SRFG 3/10
TRFG 3/10
MINIT* 1/10 → 6/10
C STOP READY* 3/10
CRFG1 5/10
CRFG1 8/10
CRFG2 5/10
CRFG2 8/10
SSYNC* 9/10
192FS 9/10
192FS 10/10
ESASEL 3/10
ESAIN 10/10

Transport CPU

TRC-1 BOARD (4/10)

BOARD NO.1-627-115-11 & HIGHER
PCM-3348

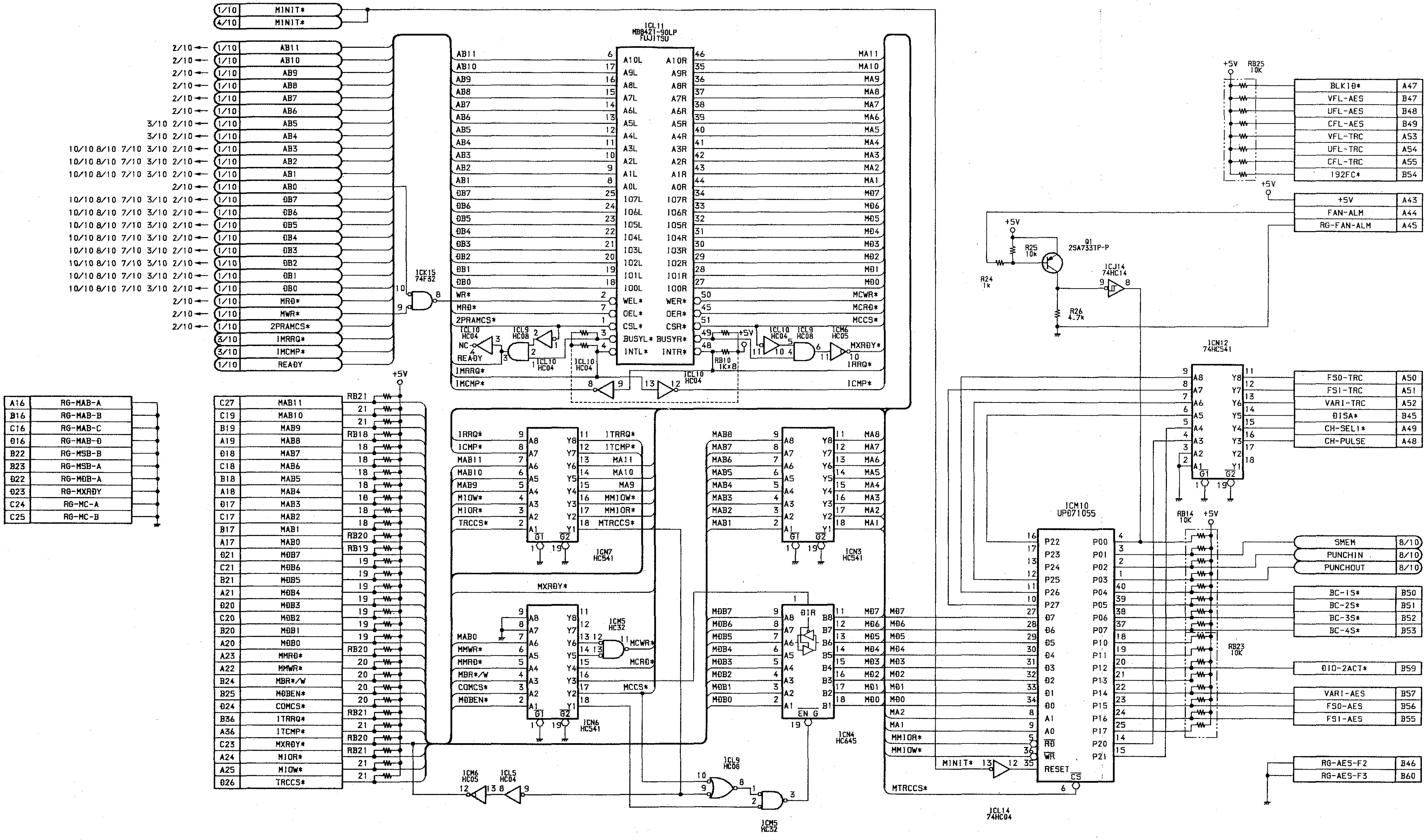


ICN2 HC541
RB17 10K +5V
CRFG1 4/10 8/10
CRFG2 4/10 8/10
LPCC* 7/10
LPCB* 7/10
LPCA* 7/10
DECRNG* 7/10
TRGEN* 7/10
ISALTC* 9/10
CRFG L1 C49
CRFG L2 D49
LPCONT C* D50
LPCONT B* D51
LPCONT A* D52
DEC RANGE* D53
TRIG EN* D54
ISALTC* D55
ICM15 HC573
RB15 10K +5V
ASTB 1/10
AD7 AD6 AD5 AD4 AD3 AD2 AD1 AD0 1/10
AB7 D7
AB6 C7
AB5 B7
AB4 A7
AB3 D6
AB2 C6
AB1 B6
AB0 A6
ICM16 HC645
RB16 10K +5V
DIR
EN G
DB7 D9
DB6 C9
DB5 B9
DB4 A9
DB3 D8
DB2 C8
DB1 B8
DB0 A8
ICL5 HC04
ICK14 HC10
TEST* 1/10
IOEN 1/10 2/10
ICM4 HC541
RB12 10K +5V
IOR* 1/10 10/10 8/10 7/10 3/10
IOW* 1/10 8/10 3/10
BR*/W 1/10
DBEN* 1/10
CAPCS* 2/10
SRVCS* 2/10
RESET* 1/10 3/10
STRIG* 8/10
IOR* A11
IOW* B11
BR*/W D11
DBEN* C11
CAPCS* C13
SRVCS* B13
RESET* C15
ITRIG* A37
ICM8 HC541
RB13 10K +5V
RESET 1/10 3/10
CTLCS* 2/10
LTCCS* 2/10
PMPLS 3/10
TDIR 3/10 8/10 7/10
TACH 8/10
CTLCS* D13
LTCCS* A15
PMPLS B40
TDIR D57
TACH D56
TACH1 D28
TACH2 D29
IC104 MA64HA
IC103 MA54HA
JR3
JR4
ICN13 AM26LS31
TACH250F1 8/10
TACH250F2 8/10
TACH1
TACH2
C6 33p C9 33p C5 33p C10 33p
R9 47 R16 47 R10 47 R15 47
IC108 MA64HA
IC107 MA54HA
TDIR+ D59
TDIR- D60
TACH+ C59
TACH- C60
+5V
RG-TRC-A5 A5
RG-TRC-B5 B5
RG-TRC-C5 C5
RG-TRC-D5 D5
RG-TRC-A10 A10
RG-TRC-B10 B10
RG-TRC-C10 C10
RG-TRC-D10 D10
RG-TRC-A12 A12
RG-TRC-B12 B12
RG-TRC-C12 C12
RG-TRC-D12 D12
RG-TRC-C14 C14
RG-LTCCS A14
RG-KC-E D27
RG-TRC-C50 C50
RG-TRC-C51 C51
RG-TRC-C52 C52
RG-TRC-C53 C53
RG-TRC-C54 C54
RG-TRC-C55 C55
RG-TRC-C56 C56
RG-TRC-C57 C57
RG-SR3-A C58
RG-SR3-B D58

Transport CPU

TRC-1 BOARD (5/10)

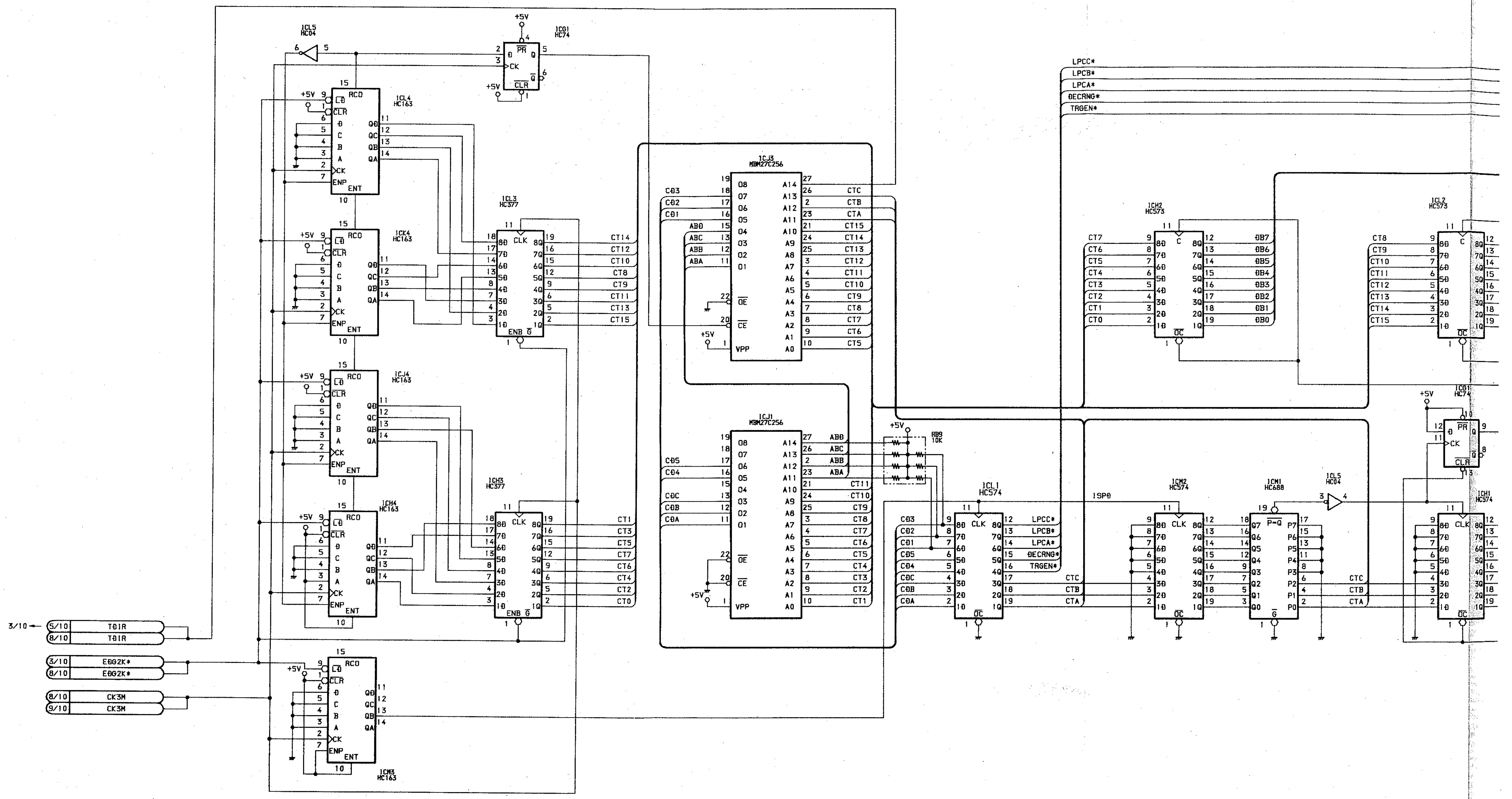
BOARD NO.1-627-115-11 & HIGHER
PCM-3348


MINIT*
IC L11
MB8421-90LP
FUJITSU
IC K15
74F32
IC N12
74HC541
IC M10
UPD71055
IC N7
HC541
IC N3
HC541
IC N6
HC541
IC N4
HC645
IC M5
HC32
IC L14
74HC04
IC J14
74HC14
Q1
2SA733TP-P
R24
1k
R25
10k
R26
4.7k
RB25
10K
RB14
10K
RB23
10K
+5V
RG-MAB-A
RG-MAB-B
RG-MAB-C
RG-MAB-D
RG-MSB-B
RG-MSB-A
RG-MDB-A
RG-MXRDY
RG-MC-A
RG-MC-B
BLK10*
VFL-AES
UFL-AES
CFL-AES
VFL-TRC
UFL-TRC
CFL-TRC
192FC*
FAN-ALM
RG-FAN-ALM
FS0-TRC
FS1-TRC
VARI-TRC
DISA*
CH-SEL1*
CH-PULSE
SMEM
PUNCHIN
PUNCHOUT
BC-1S*
BC-2S*
BC-3S*
BC-4S*
DIO-2ACT*
VARI-AES
FS0-AES
FS1-AES
RG-AES-F2
RG-AES-F3
MXRDY*
MTRCCS*

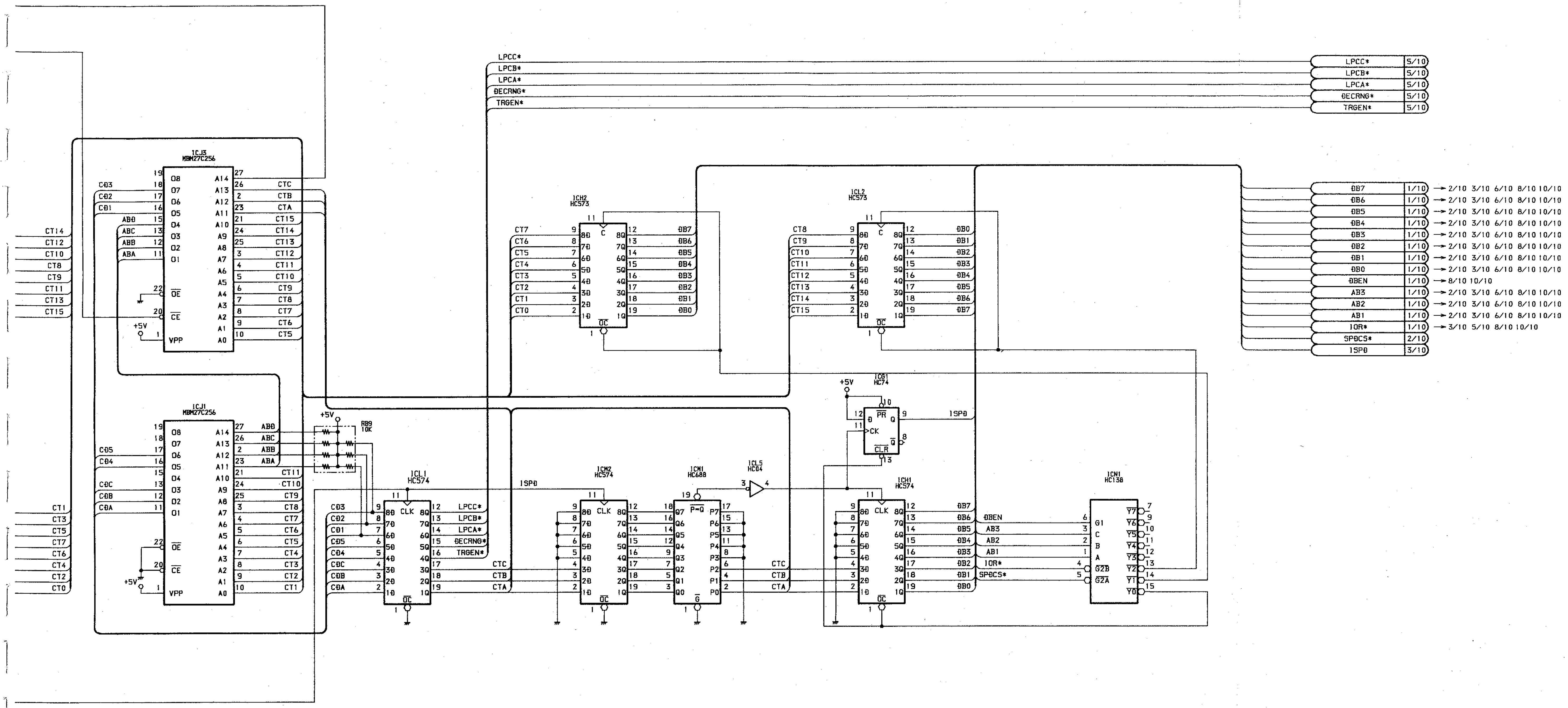
Transport CPU

TRC-1 BOARD (6/10)

BOARD NO.1-627-115-11 & HIGHER
PCM-3348



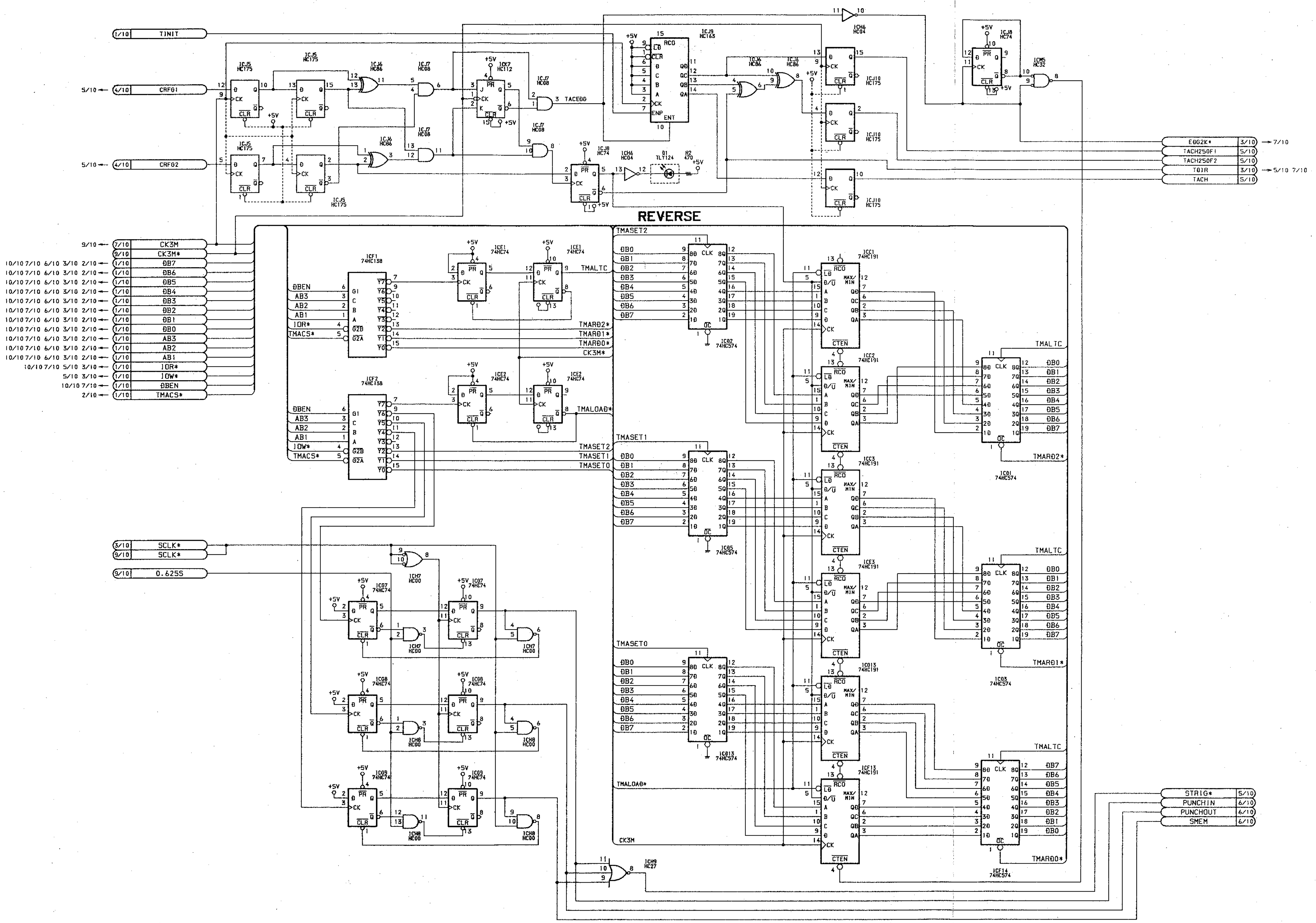
ICL5
HC04
ICG1
HC74
+5V
ICL4
HC163
ICK4
HC163
ICJ4
HC163
ICH4
HC163
ICM3
HC163
ICL3
HC377
ICH3
HC377
ICJ3
MBM27C256
ICJ1
MBM27C256
RB9
10K
ICL1
HC574
ICH2
HC573
ICL2
HC573
ICM2
HC574
ICM1
HC688
ICH1
HC574
RCO
LD
CLR
ENP
ENT
CK
CLK
ENB
OE
CE
VPP
OC
PR
P=Q
3/10
5/10
8/10
9/10
T0IR
E0G2K*
CK3M
LPCC*
LPCB*
LPCA*
DECRNG*
TRGEN*
ISP0
C03
C02
C01
C05
C04
C0C
C0B
C0A
AB0
ABC
ABB
ABA
CTC
CTB
CTA
CT0
CT1
CT2
CT3
CT4
CT5
CT6
CT7
CT8
CT9
CT10
CT11
CT12
CT13
CT14
CT15
0B0
0B1
0B2
0B3
0B4
0B5
0B6
0B7


IC J3 MBM27C256
IC J1 MBM27C256
IC H2 HC573
IC L2 HC573
IC G1 HC74
IC L1 HC574
IC M2 HC574
IC M1 HC688
IC L5 HC04
IC H1 HC574
IC N1 HC138
RB9 10K
+5V
LPCC* 5/10
LPCB* 5/10
LPCA* 5/10
ΘECRNG* 5/10
TRGEN* 5/10
ΘB7 1/10 2/10 3/10 6/10 8/10 10/10
ΘB6 1/10 2/10 3/10 6/10 8/10 10/10
ΘB5 1/10 2/10 3/10 6/10 8/10 10/10
ΘB4 1/10 2/10 3/10 6/10 8/10 10/10
ΘB3 1/10 2/10 3/10 6/10 8/10 10/10
ΘB2 1/10 2/10 3/10 6/10 8/10 10/10
ΘB1 1/10 2/10 3/10 6/10 8/10 10/10
ΘB0 1/10 2/10 3/10 6/10 8/10 10/10
ΘBEN 1/10 8/10 10/10
AB3 1/10 2/10 3/10 6/10 8/10 10/10
AB2 1/10 2/10 3/10 6/10 8/10 10/10
AB1 1/10 2/10 3/10 6/10 8/10 10/10
IOR* 1/10 3/10 5/10 8/10 10/10
SPΘCS* 2/10
ISPΘ 3/10
CT0
CT1
CT2
CT3
CT4
CT5
CT6
CT7
CT8
CT9
CT10
CT11
CT12
CT13
CT14
CT15
CTA
CTB
CTC
C0A
C0B
C0C
C01
C02
C03
C04
C05
AB0
ABA
ABB
ABC

Transport CPU

TRC-1 BOARD (7/10)

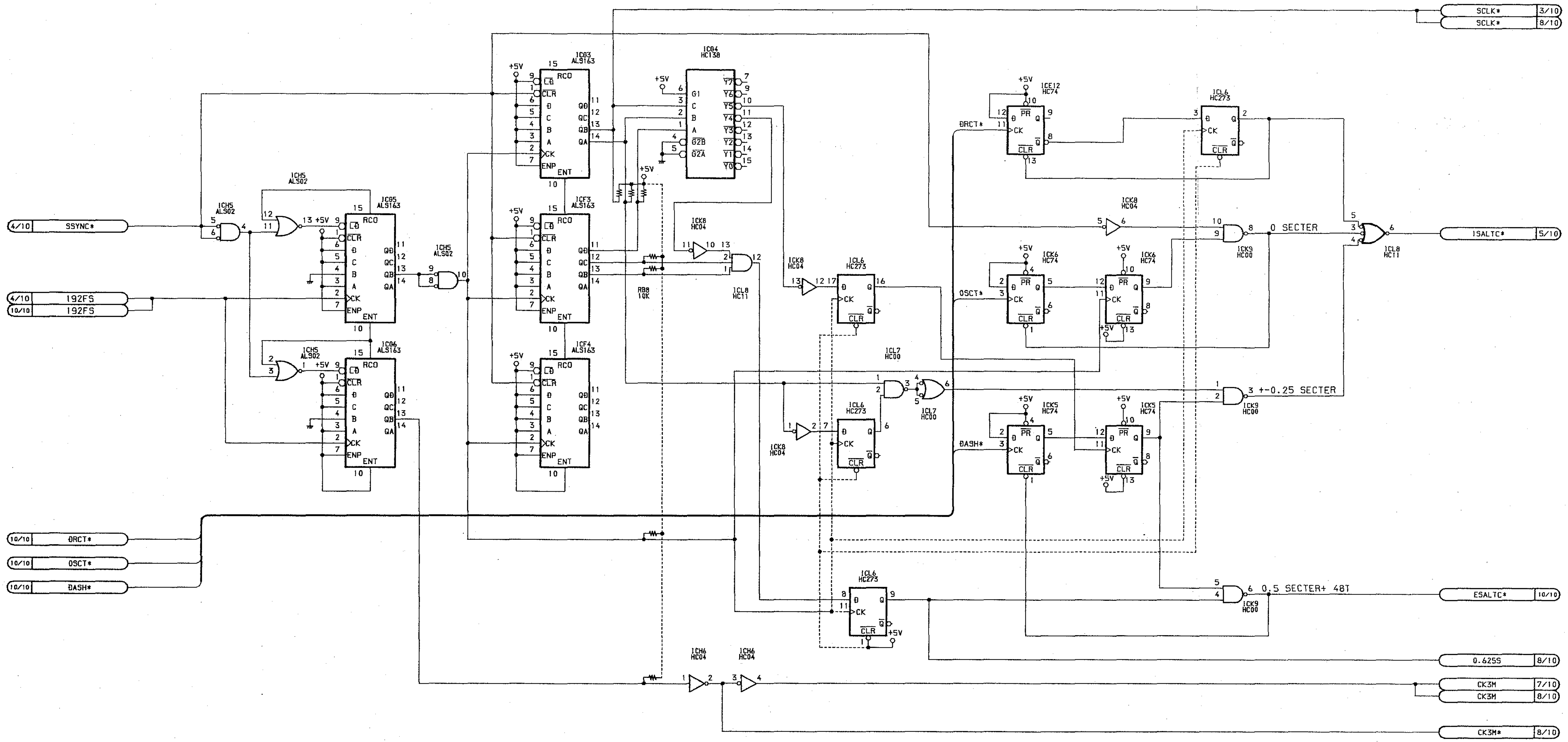
BOARD NO.1-627-115-11 & HIGHER
PCM-3348


TINIT
CRFG1
CRFG2
CK3M
CK3M*
ØB7
ØB6
ØB5
ØB4
ØB3
ØB2
ØB1
ØB0
AB3
AB2
AB1
IOR*
IOW*
ØBEN
TMACS*
SCLK*
0.625S
TACEDG
REVERSE
TMASET2
TMASET1
TMASET0
TMALTC
TMALOAD*
TMARD2*
TMARD1*
TMARD0*
EDG2K*
TACH250F1
TACH250F2
TDIR
TACH
STRIG*
PUNCHIN
PUNCHOUT
SMEM
74HC138
74HC74
74HC574
74HC191
HC175
HC86
HC08
HC112
HC163
HC04
HC32
HC00
HC27
TLT124

Transport CPU

TRC-1 BOARD (8/10)

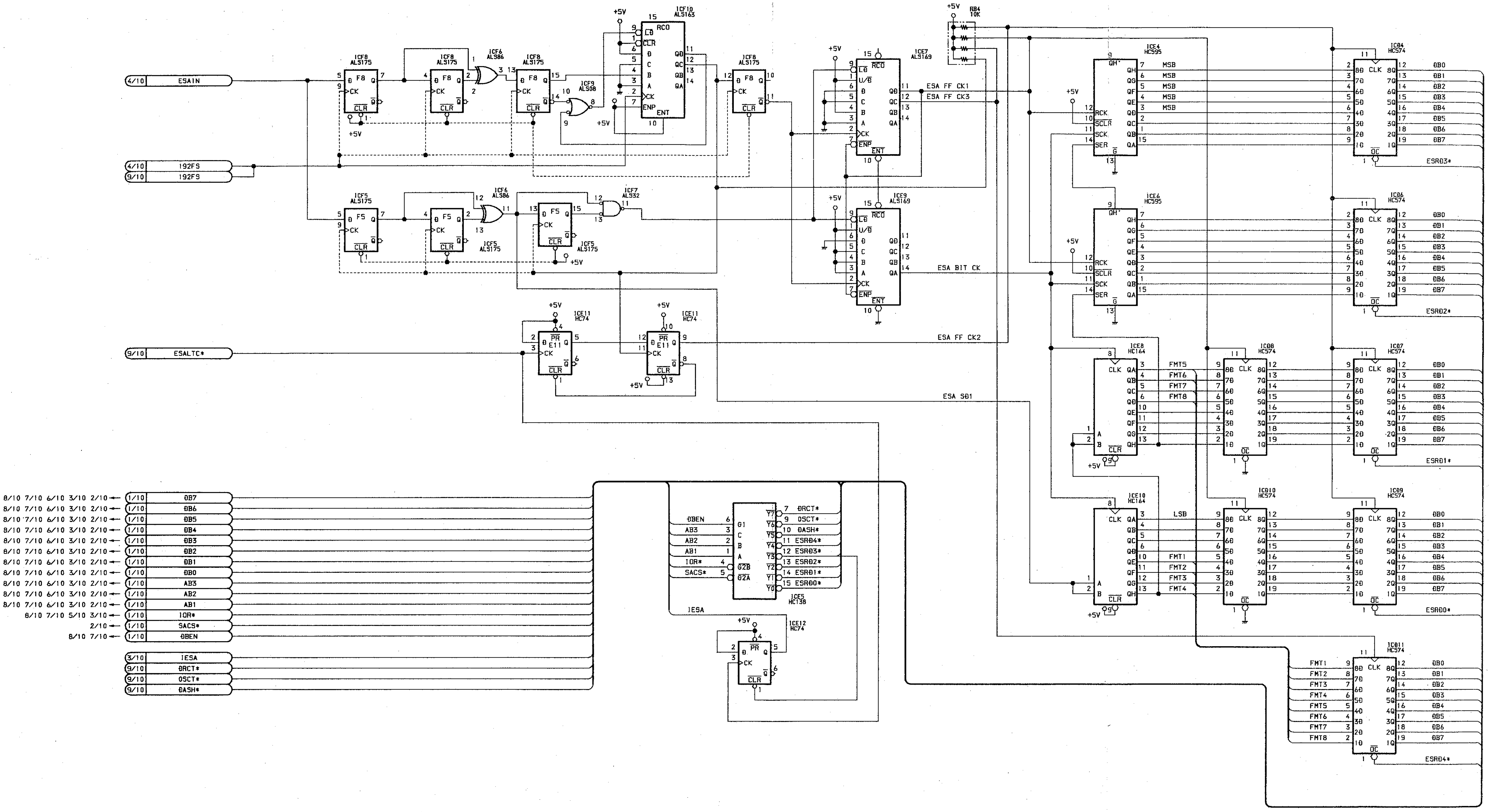
BOARD NO.1-627-115-11 & HIGHER
PCM-3348


SCLK* 3/10
SCLK* 8/10
SSYNC* 4/10
192FS 4/10
192FS 10/10
ORCT* 10/10
OSCT* 10/10
BASH* 10/10
ICH5 ALS02
IC85 ALS163
IC86 ALS163
IC83 ALS163
ICF3 ALS163
ICF4 ALS163
IC84 HC138
ICK8 HC04
ICL8 HC11
ICL6 HC273
ICL7 HC00
ICE12 HC74
ICK6 HC74
ICK5 HC74
ICK9 HC00
ICH6 HC04
RB8 10K
+5V
0 SECTER
+-0.25 SECTER
0.5 SECTER+ 48T
ISALTC* 5/10
ESALTC* 10/10
0.625S 8/10
CK3M 7/10
CK3M 8/10
CK3M* 8/10

Transport CPU

TRC-1 BOARD (9/10)

BOARD NO.1-627-115-11 & HIGHER
PCM-3348


4/10 ESAIN
4/10 192FS
9/10 192FS
9/10 ESALTC*
ICF8 ALS175
ICF6 ALS86
ICF9 ALS08
ICF10 ALS163
ICF5 ALS175
ICF6 ALS86
ICF7 ALS32
ICE11 HC74
ICE7 ALS169
ICE9 ALS169
RB4 10K
ICE4 HC595
ICE6 HC595
ICE8 HC164
ICE10 HC164
ICD4 HC574
ICD6 HC574
ICD7 HC574
ICD8 HC574
ICD9 HC574
ICD10 HC574
ICD11 HC574
ICE5 HC138
ICE12 HC74
+5V
ESA FF CK1
ESA FF CK3
ESA FF CK2
ESA BIT CK
ESA S01
MSB
LSB
FMT1
FMT2
FMT3
FMT4
FMT5
FMT6
FMT7
FMT8
ESR00*
ESR01*
ESR02*
ESR03*
ESR04*
0B0
0B1
0B2
0B3
0B4
0B5
0B6
0B7
8/10 7/10 6/10 3/10 2/10 ← 1/10 0B7
8/10 7/10 6/10 3/10 2/10 ← 1/10 0B6
8/10 7/10 6/10 3/10 2/10 ← 1/10 0B5
8/10 7/10 6/10 3/10 2/10 ← 1/10 0B4
8/10 7/10 6/10 3/10 2/10 ← 1/10 0B3
8/10 7/10 6/10 3/10 2/10 ← 1/10 0B2
8/10 7/10 6/10 3/10 2/10 ← 1/10 0B1
8/10 7/10 6/10 3/10 2/10 ← 1/10 0B0
8/10 7/10 6/10 3/10 2/10 ← 1/10 AB3
8/10 7/10 6/10 3/10 2/10 ← 1/10 AB2
8/10 7/10 6/10 3/10 2/10 ← 1/10 AB1
8/10 7/10 5/10 3/10 ← 1/10 IOR*
2/10 ← 1/10 SACS*
8/10 7/10 ← 1/10 0BEN
3/10 IESA
9/10 0RCT*
9/10 0SCT*
9/10 0ASH*
0BEN
AB3
AB2
AB1
IOR*
SACS*
IESA
0RCT*
0SCT*
0ASH*

Transport CPU

TRC-1 BOARD (10/10)

BOARD NO.1-627-115-11 & HIGHER
PCM-3348